

# ASTOUNDING

MAR. '42

*Science-fiction 25c*



## RECRUITING STATION

By A. E. VAN VOGT

MARCH • 1942

A STREET AND SMITH PUBLICATION



# How you can catch cold—and what to do about it



**DUCK THAT KISS** if the one you are kissing has a cold. Kissing is one of the surest ways of exposing yourself; bacteria may travel by direct contact.



**LOOK OUT FOR SNEEZES AND COUGHS!** Bacteria are shot into the air by your nose or mouth.

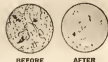


**SUDDEN CHANGES OF TEMPERATURE** make certain types of people more susceptible to colds. In some cases they weaken resistance so that bacteria, already present, may get the upper hand.



## NOTE HOW LISTERINE GARGLE REDUCED GERMS

The two drawings illustrate height of range in germ reductions on mouth and throat surfaces in test cases before and after gargling Listerine Antiseptic. Fifteen minutes after gargling, germ reductions up to 96.7% were noted; and even one hour after, germs were still reduced as much as 80%.



**IN SOME PERSONS DRAFTS** cause disturbances of the circulatory system and, as in the case of sudden temperature changes, may lower body resistance.



**BEFORE HANDLING BABY!** If you have a cold yourself or have shaken hands with someone who has, always rinse your hands with full strength Listerine. Germs thrive on moist hand surfaces.



**UTENSILS USED BY THOSE WITH COLDS** may communicate the infection to others. Be particularly careful about children.

## AT THE FIRST SIGN OF A COLD or SORE THROAT Gargle LISTERINE—QUICK!

This prompt and easy precaution, frequently repeated, may head off the trouble entirely or lessen the severity of the infection if it does develop. Carefully conducted clinical tests during the past 10 years showed these amazing results:

That regular, twice-a-day users of Listerine Antiseptic had fewer colds, milder colds, colds of shorter duration, than non-users, and fewer sore throats due to colds in many cases.

You naturally want to know why this is so.

We believe that it is because Listerine reaches way back on the throat to kill

literally millions of the threatening bacteria known to doctors as the "secondary invaders" which may set up infection when body resistance is lowered for any reason (see panel above). In the opinion of many leading medical men these "secondary invaders" are the ones that so often complicate a cold . . . make it troublesome . . . result in the distressing symptoms you know all too well.

Actual tests showed bacterial reductions on the mouth and throat surfaces ranging to 96.7%, even 15 minutes after the Listerine Antiseptic gargle . . . up to 80% an hour after.

In view of this impressive evidence isn't it wise to keep Listerine Antiseptic handy in home and office . . . to pack it when you travel . . . to gargle with it often and thoroughly at the first hint of trouble?

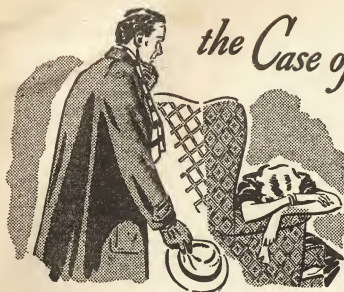
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## the Case of the Crying Wife

1 Ann doesn't cry easily—but that night I found her in tears! "I can't help it," she sobbed. "All the things we were going to do—buy a car, build a home—remember? And here we are—married three years, and just barely making ends meet! I thought our dreams might come true—but it's no use." I made up my mind right then to "have it out" with the boss.



2 "Look here!" he said. "I can't pay you more unless you're worth more! And frankly, John, you lack the training a bigger job needs. Ever hear of the International Correspondence Schools?"



3 When I learned the boss was a former I.C.S. student, I signed up *quick!* And what a difference it made in my work! I'd never realized until then how *little* I knew about the business.



4 I'm happy, and Ann's happy, and I guess the boss is happy. (At least I've had two "raises" in the last year!) And here's the very same coupon that I mailed, staring you in the face!

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# ASTOUNDING

## SCIENCE-FICTION

TITLE REGISTERED U. S. PATENT OFFICE

Contents for March, 1942, Vol. XXIX, No. 1

John W. Campbell, Jr., Editor, Catherine Tarrant, Asst. Editor

### Novelettes

<b>RECRUITING STATION</b> . . . . .	<b>A. E. van Vogt</b> . . .	<b>8</b>
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<b>DAY AFTER TOMORROW</b> . . . . .	<b>Roby Wentz</b> . . .	<b>55</b>
Fulminate to set off booster charges; booster charges to set off TNT; TNT to set off fifteen thousand tons of Axelite—and that to set off the most terrific force any army ever used against an enemy!		
<b>GOLDFISH BOWL</b> . . . . .	<b>Anson MacDonald</b> .	<b>77</b>
"Creation Took Eight Days," was all the brief message could say. Meaningless—unless you'd lived and died in the Goldfish Bowl!		
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Robots cost money, and should have a sense of self-preservation built in. They should, also, obey orders. But when the two reactions meet in head-on conflict—		

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*Illustrations by Kramer, Orban, Rogers and Schneeman*

*Cover by Rogers*

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I did it*

by S. J. E.  
(NAME AND ADDRESS  
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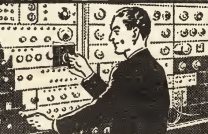
"I had an \$18 a week job in a shoe factory, but desired to make more money and continue my education. I read about Radio opportunities and enrolled with the National Radio Institute."



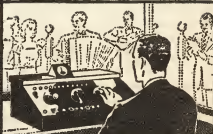
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# SCIENCE-FICTION AND WAR

War has long been a favorite theme in science-fiction; we are now engaged in a war that is no fictional theme, but a bitter reality. We don't like it; we didn't want it. We approach the unpleasant reality with a viewpoint no warlord of the Axis can appreciate—something best described as a cold fury.

They started it on the wrong basis, from their point of view—a scientific, mechanized war. To attack the United States with a war of that order is a terrible error.

In Europe, Asia, all the rest of the world, mechanism is the tool of a few trained experts, something familiar to a minute part of the population as the result of specialized study. European automobiles have, for many years, used devices considerably in advance of American automobile gadgetry, and done it successfully, because of that factor. The European car manufacturer didn't have to keep the back yard mechanic in mind; he could be sure that only specially trained mechanics would ever attempt to adjust or inspect the new device. Millions of Americans—the whole draft army, practically—know the fundamentals of the care and treatment of automotive equipment.

That's important. If a tank, a truck, a jeep—any bit of mechanized equipment—should balk, there's no tendency among American troops to beat it with a club till it gets over its stubbornness. (If all the motive power you ever encountered was animal—horse, mule, ox or donkey—you'd have a tendency to try that method.) It doesn't take an engineer officer in the American army to point out that if the wheels on one side are slipping in the mud although the other wheels are on firm ground, you won't get any traction through a differential gear drive. The average American has had his own car stuck in mud, sand or snow enough to know what to do.

Sure it takes a specially trained mechanic to adjust the huge engine of a modern tank—but any American has an almost instinctive understanding of how to treat a good machine. That little factor is enough to make mechanism work a lot longer and better.

The United States produced about five million automotive vehicles a year in normal times; we've swung that enormous production of high-order mechanism into war channels.

Those are predictable, estimable factors. The value to be assigned to the factor of general American inventiveness is unknowable. The war seems pretty sure to last another two and a half to three years. During the past two years, the army, navy and a few directly affected companies

have conducted research campaigns; we most ardently wanted peace and a chance to lead normal lives undisturbed. Now we have determined on the annihilation of those who want war, all the research facilities of the nation will be concentrated on that end.

We have the highest potential of scientific research of any nation on Earth, by far. There are two factors in effective research—the theoreticians and the production researchers. It is theoretically possible, for instance, to make a device consisting of an infrared sensitive photocell, an amplifier and a viewing screen which will make any airplane visible at night as a glowing light in the sky. Internal-combustion engines necessarily get hot, and radiate infrared. To date, that theory has been nice, but impracticable. The gadget can be made, but the degree of sensitivity required, the amplification needed and the delicacy of control that huge amplification demands have made the apparatus mountainous in size. The trouble is stability—a stable current, an amplifier that didn't change its characteristics so that dots of light appeared and disappeared indiscriminately.

We're also approaching the science-fictional item of the one-hundred-percent automatic gun—it sees all, knows all and blasts all, all by itself. We need 'em, too. The dive bomber and torpedo plane approach so rapidly, and change their angle with respect to the gunner so rapidly, that no manually controlled gun can follow their line of flight. A man can't react in less than half a second; a photocell and associated vacuum-tube apparatus can react, interact, deduce and reach a conclusion carefully weighed and considered in less than one ten-thousandth of a second. The steel-and-magnetic arms of hundred-horsepower electric motors can snap three or four tons of high-power rifle around with more ease—and a lot more precision—than a man can use with a .22 rifle. When electric eyes can tell electric brains—via electric nerves—where planes are, and steel arms respond in a hundredth of a second, dive bombers and torpedo planes will be ruled out.

That sort of thing—precision automatic photo-electric or radio-electric control—is the home stamping ground of American industrial engineers. We invented the klystron. Bell Laboratories invented the radio-reflection altimeter. We produced the first thyatron, a vacuum tube that will handle twenty thousand ampere currents, can control big motors with micrometer precision.

If you *must* attack America, do it with horse cavalry and war clubs—not mechanized warfare!

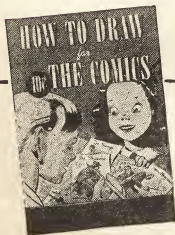
*The Editor.*



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# RECRUITING STATION

By A. E. van Vogt

● They recruited with a time machine—across twenty thousand years of human history. “Men Wanted” their signs read; if it was a station set up in an era of peace, it was for work, so they said. But it led to the greatest war of all time—

Illustrated by Rogers

She didn't dare! Suddenly, the night was a cold, enveloping thing. The edge of the broad, black river gurgled evilly at her feet as if, now that she had changed her mind—it hungered for her.

Her foot slipped on the wet, sloping ground; and her mind grew blurred with the terrible senseless fear that *things* were reaching out of the night, trying to drown her now against her will.

She fought up the bank—and slumped breathless onto the nearest park bench, coldly furious with her fear. Dully, she watched the gaunt man come along the pathway past the light standard. So sluggish was her brain that she was not aware of surprise when she realized he was coming straight toward her.

The purulent yellowish light made a crazy patch of his shadow across her where she sat. His

voice, when he spoke, was vaguely foreign in tone, yet modulated, cultured. He said:

“Are you interested in the Calonian cause?”

Norma stared. There was no quickening in her brain, but suddenly she began to laugh. It was funny, horribly, hysterically *funny* funny. To be sitting here, trying to get up the nerve for another attempt at those deadly waters, and then to have some crackbrain come along and—

“You're deluding yourself, Miss Matheson,” the man went on coolly. “You're not the suicide type.”

“Nor the pickup type!” she answered automatically. “Beat it before—”

Abruptly, it penetrated that the man had called her by name. She looked up sharply at the dark blank that was his face. His head against the background of distant light nodded as if in reply



to the question that quivered in her thought.

"Yes, I know your name. I also know your history and your fear!"

"What do you mean?"

"I mean that a young scientist named Garson arrived in the city tonight to deliver a series of lectures. Ten years ago, when you and he graduated from the same university, he asked you to marry him, but it was a career you wanted—and now you've been terrified that, in your extremity, you would go to him for assistance and—"

"Stop!"

The man seemed to watch her as she sat there breathing heavily. He said at last, quietly:

"I think I have proved that I am not simply a casual philanderer."

"What other kind of philanderer is there?"

Norma asked, sluggish again. But she made no objection as he sank down on the far end of the bench. His back was still to the light, his features night-enveloped.

"Ah," he said, "you joke; you are bitter. But that is an improvement. You feel now, perhaps, that if somebody has taken an interest in you, all is not lost."

Norma said dully: "People who are acquainted with the basic laws of psychology are cursed with the memory of them even when disaster strikes into their lives. All I've done the last ten years is—"

She stopped; then: "You're very clever. With-out more than arousing my instinctive suspicions, you've insinuated yourself into the company of an hysterical woman. What's your purpose?"

"I intend to offer you a job."

Norma's laugh sounded so harsh in her own ears that she thought, startled: "I am hysterical!"

Aloud, she said: "An apartment, jewels, a car of my own, I suppose?"

His reply was cool: "No! To put it frankly, you're not pretty enough. Too angular, mentally and physically. That's been one of your troubles the last ten years; a developing introversion of the mind which has influenced the shape of your body unfavorably."

The words shivered through the suddenly stiffened muscles of her body. With an enormous effort, she forced herself to relax. She said: "I had that coming to me. Insults are good for hysteria; so now what?"

"Are you interested in the Calonian cause?"

"There you go again," she complained. "But yes, I'm for it. Birds of a feather, you know."

"I know very well indeed. In fact, in those words you named the reason why I am here to-night, hiring a young woman who is up against it. Calonia, too, is up against it and—" He stopped; in the darkness, he spread his shadow-

like hands. "You see: good publicity for our recruiting centers."

Norma nodded. She did see, and, suddenly, she didn't trust herself to speak; her hand trembled as she took the key he held out.

"This key," he said, "will fit the lock of the front door of the recruiting station; it will also fit the lock of the door leading to the apartment above it. The apartment is yours while you have the job. You can go there tonight if you wish, or wait until morning if you fear this is merely a device—now, I must give you a warning."

"Warning?"

"Yes. The work we are doing is illegal. Actually, only the American government can enlist American citizens and operate recruiting stations. We exist on sufferance and sympathy, but at any time someone may lay a charge; and the police will have to act."

Norma nodded rapidly. "That's no risk," she said. "No judge would ever—"

"The address is 322 Carlton Street," he cut in smoothly. "And for your information, my name is Dr. Lell."

Norma had the distinct sense of being pushed along too swiftly for caution. She hesitated, her mind on the street address. "Is that near Bessemer?"

It was his turn to hesitate. "I'm afraid," he confessed, "I don't know this city very well, at least not in its twentieth century . . . that is," he finished suavely, "I was here many years ago, before the turn of the century."

Norma wondered vaguely why he bothered to explain; she said, half-accusingly: "You're not a Calonian. You sound—French, maybe."

"You're not a Calonian, either!" he said, and stood up abruptly. She watched him walk off into the night, a great gloom-wrapped figure that vanished almost immediately.

She stopped short in the deserted night street. The sound that came was like a whisper touching her brain; a machine whirring somewhere with almost infinite softness. For the barest moment, her mind concentrated on the shadow vibrations; and then, somehow, they seemed to fade like figments of her imagination. Suddenly, there was only the street and the silent night.

The street was dimly lighted; and that brought doubt, sharp and tinged with a faint fear. She strained her eyes and traced the numbers in the shadow of the door: 322! That was it!

The place was dark. She peered at the signs that made up the window display:

"FIGHT FOR THE BRAVE CALONIANS" "THE CALONIANS ARE FIGHTING FREEDOM'S FIGHT—YOUR FIGHT!" "IF YOU CAN PAY YOUR OWN WAY, IT WOULD BE APPRECIATED; OTHERWISE WE'LL GET YOU OVER!"

There were other signs, but they were essentially the same, all terribly honest and appealing, if you really thought about the desperate things that made up their grim background.

Illegal, of course. But the man had admitted that, too. With sudden end of doubt, she took the key from her purse.

There were two doorways, one on either side of the window. The one to the right led into the recruiting room. The one on the left—

The stairs were dimly lighted, and the apartment at the top was quite empty of human beings. The door had a bolt; she clicked it home, and then, wearily, headed for the bedroom.

And it was as she lay in the bed that she grew aware again of the incredibly faint whirring of a machine. The shadow of a shadow sound; and, queerly, it seemed to reach into her brain: the very last second before she drifted into sleep, the pulse of the vibration, remote as the park bench, was a steady beat inside her.

All through the night that indescribably faint whirring was there. Only occasionally did it seem to be in her head; she was aware of turning, twisting, curling, straightening and, in the fractional awakedness that accompanied each move, the tiniest vibrational tremors would sweep down along her nerves like infinitesimal currents of energy.

Spears of sunlight piercing brilliantly through the window brought her awake at last. She lay taut and strained for a moment, then relaxed, puzzled. There was not a sound from the maddening machine, only the noises of the raucous, awakening street.

There was food in the refrigerator and in the little pantry. The weariness of the night vanished swiftly before the revivifying power of breakfast. She thought in gathering interest: what did he look like, this strange-voiced man of night?

Relieved surprise flooded her when the key unlocked the door to the recruiting room, for there had been in her mind a little edged fear that this was all quite mad.

She shuddered the queer darkness out of her system. What was the matter with her, anyway? The world was sunlit and cheerful, not the black and gloomy abode of people with angular introversion of the mind.

She flushed at the memory of the words. There was no pleasure in knowing that the man's enormously clever analysis of her was true. Still stinging, she examined the little room. There were four chairs, a bench, a long wooden counter and newspaper clippings of the Calonian War on the otherwise bare walls.

There was a back door to the place. Dimly curious, she tried the knob—once! It was locked, but there was something about the feel of it—

A tingling shock of surprise went through her. The door, in spite of its wooden appearance, was solid metal!

Momentarily, she felt chilled; finally she thought: "None of my business."

And then, before she could turn away, the door opened, and a gaunt man loomed on the threshold. He snapped harshly, almost into her face:

"Oh, yes, it is your business!"

It was not fear that made her back away. The depths of her mind registered the cold hardness of his voice, so different from the previous night. Vaguely she was aware of the ugly sneer on his face. But there was no real emotion in her brain, nothing but a blurred blankness.

It was not fear; it couldn't be fear because all she had to do was run a few yards, and she'd be out on a busy street. And besides she had never been afraid of Negroes, and she wasn't now.

That first impression was so sharp, so immensely surprising that the fast-following second impression seemed like a trick of her eyes. For the man wasn't actually a Negro; he was—

She shook her head, trying to shake that trickiness out of her vision. But the picture wouldn't change. He wasn't a Negro, he wasn't white, he wasn't—anything!

Slowly her brain adjusted itself to his alienness. She saw that he had slant eyes like a Chinaman, his skin, though dark in texture, was dry with a white man's dryness. The nose was sheer chiseled beauty, the most handsome, most normal part of his face; his mouth was thin-lipped, commanding; his chin bold and giving strength and power to the insolence of his steel-gray eyes. His sneer deepened as her eyes grew wider and wider.

"Oh, no," he said softly, "you're not afraid of me, are you? Let me inform you that my purpose is to *make* you afraid. Last night I had the purpose of bringing you here. That required tact, understanding. My new purpose requires, among other things, the realization on your part that you are in my power beyond the control of your will or wish.

"I could have allowed you to discover gradually that this is not a Calonian recruiting station. But I prefer to get these early squirmings of the slaves over as soon as possible. The reaction to the power of the machine is always so similar and unutterably boring."

"I—don't—understand!"

He answered coldly: "Let me be brief. You have been vaguely aware of a machine. That machine has attuned the rhythm of your body to itself, and through its actions I can control you against your desire. Naturally, I don't expect you to believe me. Like the other women, you will test its mind-destroying power. Notice that I said *women*! We always hire women; for purely psychological rea-



sons they are safer than men. You will discover what I mean if you should attempt to warn any applicant on the basis of what I have told you."

He finished swiftly: "Your duties are simple. There is a pad on the table made up of sheets with simple questions printed on them. Ask those questions, note the answers, then direct the applicants to me in the back room. I have—er—a medical examination to give them."

Out of all the things he had said, the one that briefly, searingly, dominated her whole mind had no connection with her personal fate: "But," she gasped, "if these men are not being sent to Calonia, where—"

He hissed her words short: "Here comes a man. Now, remember!"

He stepped back, to one side out of sight in the dimness of the back room. Behind her, there was the dismaying sound of the front door opening. A man's baritone voice blurred a greeting into her ears.

Her fingers shook as she wrote down the man's answers to the dozen questions. Name, address, next of kin— His face was a ruddy-cheeked blur against the shapeless shifting pattern of her racing thoughts.

"You can see," she heard herself mumbling, "that these questions are only a matter of identification. Now, if you'll go into that back room—"

The sentence shattered into silence. She'd said it! The uncertainty in her mind, the unwillingness to take a definite stand until she had thought of some way out, had made her say the very thing she had intended to avoid saying. The man said: "What do I go in there for?"

She stared at him numbly. Her mind felt thick, useless. She needed time, calm. She said: "It's a simple medical exam, entirely for your own protection."

Sickly, Norma watched his stocky form head briskly toward the rear door. He knocked; and the door opened. Surprisingly, it stayed open—surprisingly, because it was then, as the man disappeared from her line of vision, that she saw the machine.

The end of it that she could see reared up immense and darkly gleaming halfway to the ceiling, partially hiding a door that seemed to be a rear exit from the building.

She forgot the door, forgot the men. Her mind fastened on the great engine with abrupt intensity as swift memory came that *this* was the machine—

Unconsciously her body, her ears, her mind, strained for the whirling sound that she had heard in the night. But there was nothing, not the tiniest of tiny noises, not the vaguest stir of vibration, not a rustle, not a whisper. The machine crouched there, hugging the floor with its solidness, its clinging metal strength; and it was ut-

terly dead, utterly motionless.

The doctor's smooth, persuasive voice came to her: "I hope you don't mind going out the back door, Mr. Barton. We ask applicants to use it because—well, our recruiting station here is illegal. As you probably know, we exist on sufferance and sympathy, but we don't want to be too blatant about the success we're having in getting young men to fight for our cause."

Norma waited. As soon as the man was gone she would force a showdown on this whole fantastic affair. If this was some distorted scheme of Calonia's enemies, she would go to the police and—

The thought twisted into a curious swirling chaos of wonder. The machine—

Incredibly, the machine was coming alive, a monstrous, gorgeous, swift aliveness. It glowed with a soft, swelling white light; and then burst into enormous flame. A breaker of writhing tongues of fire, blue and red and green and yellow, stormed over that first glow, blotting it from view instantaneously. The fire sprayed and flashed like an intricately designed fountain, with a wild and violent beauty, a glittering blaze of unearthly glory.

And then—just like that—the flame faded. Briefly, grimly stubborn in its fight for life, the swarming, sparkling energy clung to the metal.

It was gone. The machine lay there, a dull, gleaming mass of metallic deadness, inert, motionless. The doctor appeared in the doorway.

"Sound chap!" he said, satisfaction in his tone. "Heart requires a bit of glandular adjustment to eradicate the effects of bad diet. Lungs will react swiftly to gas-immunization injections, and our surgeons should be able to patch that body up from almost anything except an atomic storm."

Norma licked dry lips. "What are you talking about?" she asked wildly. "W—what happened to that man?"

She was aware of him staring at her blandly. His voice was cool, faintly amused: "Why—he went out the back door."

"He did not. He—"

She realized the uselessness of words. Cold with the confusion of her thought, she emerged from behind the counter. She brushed past him, and then, as she reached the threshold of the door leading into the rear room, her knees wobbled. She grabbed at the door jamb for support, and knew that she didn't dare go near that machine. With an effort, she said:

"Will you go over there and open it?"

He did so, smiling. The door squealed slightly as it opened. When he closed it, it creaked audibly, and the automatic lock clicked loudly.

There had been no such sound. Norma felt the deepening whiteness in her cheeks. She asked, chilled:

"What is this machine?"

"Owned by the local electric company, I believe," he answered suavely, and his voice mocked her. "We just have permission to use the room, of course."

"That's not possible," she said thickly. "Electric companies don't have machines in the back rooms of shabby buildings."

He shrugged. "Really," he said indifferently, "this is nothing to bore me. I have already told you that this is a very special machine. You have seen some of its powers, yet your mind persists in being practical after a twentieth century fashion. I will repeat merely that you are a slave of the machine, and that it will do you no good to go to the police, entirely aside from the fact that I saved you from drowning yourself, and gratitude alone should make you realize that you owe everything to me; nothing to the world you were prepared to desert. However, that is too much to expect. You will learn by experience."

Quite calmly, Norma walked across the room. She opened the door, and then, startled that he had made no move to stop her, turned to stare at him. He was still standing where she had left him. He was smiling.

"You must be quite mad," she said after a moment. "Perhaps you had some idea that your little trick, whatever it was, would put the fear of the unknown into me. Let me dispel that right now. I'm going to the police—this very minute."

The picture that remained in her mind as she climbed aboard the bus was of him standing there, tall and casual and terrible in his contemptuous derision. The chill of that memory slowly mutilated the steady tenor of her forced calm.

The sense of nightmare vanished as she climbed off the streetcar in front of the imposing police building. Sunshine splashed vigorously on the pavement, cars honked; the life of the city swirled lustily around her, and brought wave on wave of returning confidence.

The answer, now that she thought of it, was simplicity itself. Hypnotism! That was what had made her see a great, black, unused engine burst into mysterious flames.

And no hypnotist could force his will on a determined, definitely opposed mind.

Burning inwardly with abrupt anger at the way she had been tricked, she lifted her foot to step on the curb—and amazed shock stung into her brain.

The foot, instead of lifting springily, dragged; her muscles almost refused to carry the weight. She grew aware of a man less than a dozen feet from her, staring at her with popping eyes.

"Good heavens!" he gasped audibly. "I must be seeing things."

He walked off rapidly; and the part of her

thoughts that registered his odd actions simply tucked them away. She felt too dulled, mentally and physically, even for curiosity.

With faltering steps she moved across the sidewalk. It was as if something was tearing at her strength, holding her with invisible but immense forces. The machine!—she thought—and panic blazed through her.

Will power kept her going. She reached the top of the steps and approached the big doors. It was then the first sick fear came that she couldn't make it; and as she strained feebly against the stone-wall-like resistance of the door, a very fever of dismay grew hot and terrible inside her. What had happened to her? How could a machine reach out over a distance, and strike unerringly at one particular individual with such enormous, vitality-draining power?

A shadow leaned over her. The booming voice of a policeman who had just come up the steps was the most glorious sound she had ever heard.

"Too much for you, eh, madam? Here, I'll push that door for you."

"Thank you," she said; and her voice sounded so harsh and dry and weak and unnatural in her own ears that a new terror flared: in a few minutes she wouldn't be able to speak above a whisper.

"*A slave of the machine,*" he had said; and she knew with a clear and burning logic that if she was ever to conquer, it was now. She must get into this building. She must see someone in authority, and she must tell him—must—must—Somehow, she pumped strength into her brain and courage into her heart, and forced her legs to carry her across the threshold into the big modern building with its mirrored anteroom and its fine marble corridors. Inside, she knew suddenly that she had reached her limit.

She stood there on the hard floor, and felt her whole body shaking from the enormous effort it took simply to stay erect. Her knees felt dissolved and cold, like ice turning to strengthless liquid. She grew aware that the big policeman was hovering uncertainly beside her.

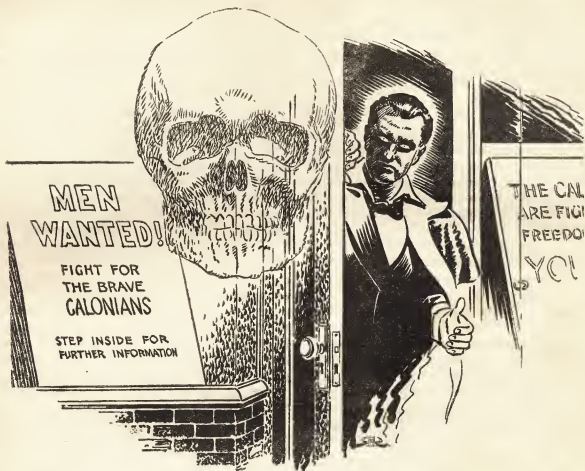
"Anything I can do, mother?" he asked heartily.

"Mother!" she echoed mentally with a queer sense of insanity. Her mind skittered off after the word. Did he really say that, or had she dreamed it? Why, she wasn't a mother. She wasn't even married. She—

She fought the thought off. She'd have to pull herself together, or there was madness here. No chance now of getting to an inspector or an officer. This big constable must be her confidant, her hope to defeat the mighty power that was striking at her across miles of city, an incredibly evil, terrible power whose ultimate purpose she could not begin to imagine. She—

There it was again, her mind pushing off into





obscure, action-destroying, defeating thoughts! She turned to the policeman, started to part her lips in speech; and it was then she saw the mirror.

She saw a tall, thin, old, old woman standing beside the fresh-cheeked bulk of a blue-garbed policeman. It was such an abnormal trick of vision that it fascinated her. In some way, the mirror was missing her image, and reflecting instead the form of an old woman who must be close behind and slightly to one side of her. Queerest thing she had ever seen.

She half lifted her red-gloved hand toward the policeman, to draw his attention to the distortion. Simultaneously, the red-gloved hand of the old woman in the mirror reached toward the policeman. Her own raised hand stiffened in midair; so did the old woman's. Funny.

Puzzled, she drew her gaze from the mirror, and stared with briefly blank vision at that rigidly uplifted hand. A tiny, uneven bit of her wrist was visible between the end of the glove and the end of sleeve of her serge suit. Her skin wasn't really as dark as—that!

Two things happened then. A tall man came softly through the door—Dr. Lell—and the big policeman's hand touched her shoulder.

"Really, madam, at your age, you shouldn't come here. A phone call would serve—"

And Dr. Lell was saying: "My poor old grandmother—"

Their voices went on, but the sense of them jangled in her brain as she jerked frantically to pull the glove off a hand wrinkled and shriveled by incredible age— Blackness pierced with agonized splinters of light reached mercifully into her brain. Her very last thought was that it must have happened just before she stepped onto the curb, when the man had stared at her pop-eyed and thought himself crazy. He must have seen the change taking place.

The pain faded; the blackness turned gray, then white. She was conscious of a car engine purring, and of forward movement. She opened her eyes—and her brain reeled from a surge of awful memory.

"Don't be afraid!" said Dr. Lell, and his voice was as soothing and gentle as it had been hard and satirical at the recruiting station. "You are again yourself; in fact, approximately ten years younger."

He removed one hand from the steering wheel and flashed a mirror before her eyes. The brief glimpse she had of her image made her grab at the silvered glass as if it were the most precious thing in all the world.

One long, hungry look she took; and then her arm, holding the mirror, collapsed from sheer, stupendous relief. She lay back against the cushions, tears sticky on her cheeks, weak and sick from dreadful reaction. At last she said steadily:

"Thanks for telling me right away. Otherwise I should have gone mad."

"That, of course, was why I told you," he said; and his voice was still soft, still calm. And she felt soothed, in spite of the dark terror just past, in spite of the intellectual realization that this diabolical man used words and tones and human emotions as coldly as Pan himself piping his reed, sounding what stop he pleased. That quiet, deep voice went on:

"You see, you are now a valuable member of our twentieth-century staff, with a vested interest in the success of our purpose. You thoroughly understand the system of rewards and punishments for good or bad service. You will have food, a roof over your head, money to spend—and eternal youth! Woman, look at your face again, look hard, and rejoice for your good fortune! Weep for those who have nothing but old age and death as their future! Look hard, I say!"

It was like gazing at a marvelous photograph out of the past, except that she had been somewhat prettier in the actuality, her face more rounded, not so sharp, more girlish. She was twenty again, but different, more mature, leaner. She heard his voice go on dispassionately, a distant background to her own thoughts, feeding, feeding at the image in the mirror. He said:

"As you can see, you are not truly yourself as you were at twenty. This is because we could only manipulate the time tensions which influenced your thirty-year-old body according to the rigid mathematical laws governing the energies and forces involved. We could not undo the harm wrought these last rather prim, introvert years of your life because you have already lived them, and nothing can change that."

It came to her that he was talking to give her time to recover from the deadliest shock that had ever stabbed into a human brain. And for the first time she thought, not of herself, but of the incredible things implied by every action that had occurred, every word spoken.

"Who . . . are . . . you?"

He was silent; the car twisted in and out of the clamorous traffic; and she watched his face now, that lean, strange, dark, finely chiseled, *evil* face with its glittering dark eyes. For the moment she felt no repulsion, only a gathering storm of fascination at the way that strong chin tilted unconsciously as he said in a cold, proud, ringing voice:

"We are the masters of time. We live at the farthest frontier of time itself, and all the ages

belong to us. No words could begin to describe the vastness of our empire or the futility of opposing us. We—"

He stopped. Some of the fire faded from his dark eyes. His brows knit, his chin dropped, his lips clamped into a thin line, then parted as he snapped:

"I hope that any vague ideas you have had for further opposition will yield to the logic of events and of fact. Now you know why we hire women who have no friends."

"You—devil!" She half sobbed the words.

"Ah," he said softly, "I can see you understand a woman's psychology. Two final points should clinch the argument I am trying to make: First, I can read your mind, every thought that comes into it, every vaguest emotion that moves it. And second, before establishing the machine in that particular building, we explored the years to come; and during all the time investigated, found the machine unharmed, its presence unsuspected by those in authority. Therefore, the future record is that you did—nothing! I think you will agree with me that this is convincing."

Norma nodded dully, her mirror forgotten. "Yes," she said, "yes, I suppose it is."

Miss Norma Matheson,  
Calonian Recruiting Station,  
322 Carlton Street,

Dear Norma:

I made a point of addressing the *envelope* of this letter to you c/o General Delivery, instead of the above address. I would not care to put you in any danger, however imaginary. I use the word *imaginary* deliberately for I cannot even begin to describe how grieved and astounded I was to receive such a letter from the girl I once loved—it's eleven years since I proposed on graduation day, isn't it?—and how amazed I was by your questions and statements re time travel.

I might say that if you are not already mentally unbalanced, you will be shortly unless you take hold of yourself. The very fact that you were nerving yourself to commit suicide when this man—Dr. Lell—hired you from a park bench to be clerk in the recruiting station at the foregoing address, is evidence of hysteria. You could have gone on city relief.

I see that you have lost none of your powers of expression in various mediums. Your letter, mad though it is in subject matter, is eminently coherent and well thought out. Your drawing of the face of Dr. Lell is quite a remarkable piece of work.

If it is a true resemblance, then I agree that he is definitely not—shall I say—Western. His eyes are distinctly slanting, Chinese-style. His skin you say is, and shown as, dark in texture, indicating a faint Negro strain. His nose is very fine and sensitive, strong in character.

This effect is incremented by his firm mouth, though those thin lips are much too arrogant—the whole effect is of an extraordinarily intelligent-looking man, a super-mongrel in appearance. Such bodies could very easily be produced in the far-Eastern provinces of Asia.

I pass without comment over your description of the machine which swallows up the unsuspecting recruits.



The superman has apparently not objected to answering your questions since the police station episode; and so we have a new theory of time and space:

Time—he states—is the all, the only reality. Every unfolding instant the Earth and its life, the universe and all its galaxies are re-created by the titanic energy that is time—and always it is essentially the same pattern that is re-formed, because that is the easiest course.

He makes a comparison. According to Einstein, and in this he is correct, the Earth goes around the Sun, not because there is such a force as gravitation, but because it is easier for it to go around the Sun in exactly the way it does than to hurtle off into space.

It is easier for time to re-form the same pattern of rock, the same man, the same tree, the same earth. That is all, that is the law.

The rate of reproduction is approximately ten billion a second. During the past minute, therefore, six hundred billion replicas of myself have been created; and all of them are still there, each a separate body occupying its own space, completely unaware of the others. Not one has been destroyed. There is no purpose; it is simply easier to let them stay there, than to destroy them.

If those bodies ever met in the same space, that is if I should go back to shake hands with my twenty-year-old self, there would be a clash of similar patterns, and the interloper would be distorted out of memory and shape.

I have no criticism to make of this theory other than that it is utterly fantastic. However, it is very interesting in the vivid picture it draws of an eternity of human beings, breeding and living and dying in the quiet eddies of the time stream, while the great current flares on ahead in a fury of incredible creation.

I am puzzled by the detailed information you are seeking—you make it almost real—but I give the answers for what they are worth:

1. Time travel would naturally be based on the most rigid mechanical laws.

2. It seems plausible that they would be able to investigate your future actions.

3. Dr. Lell used phrases such as "atomic storm" and "gas immunization injections." The implication is that they are recruiting for an unimaginably great war.

4. I cannot see how the machine could act on you over a distance—unless there was some sort of radio-controlled intermediate. In your position, I would ask myself one question: Was there anything, any metal, anything, upon my person that might have been placed there by the enemy?

5. Some thoughts are so dimly held that they could not possibly be transmitted. Presumably, sharp, clear thoughts might be receivable. If you could keep your mind calm, as you say you did while deciding to write the letter—the letter itself is proof that you succeeded.

6. It is unwise to assume that here is greater basic intelligence, but rather greater development of the potential forces of the mind. If men ever learn to read minds, it will be because they train their innate capacity for mind reading; they will be cleverer only when new knowledge adds new techniques of training.

To become personal, I regret immeasurably having heard from you. I had a memory of a rather brave spirit, rejecting my proposal of marriage, determined to remain independent, ambitious for advancement in the important field of social services. Instead, I find a sorry ending, a soul disintegrated, a mind feeding on fantasia and a sense of incredible persecution. My advice is: go to a psychiatrist before it is too late, and to that end I

inclose a money order for \$200.00, and extend you my best wishes.

Yours in memory,

Jack Garson.

At least, there was no interference with her private life. No footsteps but her own ever mounted the dark, narrow flight of stairs that led to her tiny apartment. At night, after the recruiting shop closed, she walked the crowded streets; sometimes, there was a movie that seemed to promise surcease from the deadly strain of living; sometimes a new book on her old love, the social sciences, held her for a brief hour.

But there was nothing, nothing, absolutely nothing, that could relax the burning pressure of the reality of the machine. It was there always like a steel band drawn tautly around her mind.

It was crazy funny to read about the war, and the victories and the defeats—when out there, somewhere, in the future another, greater war was being fought; a war so vast that all the ages were being ransacked for manpower.

And men came! Dark men, blond men, young men, grim men, hard men, and veterans of other wars—the stream of them made a steady flow into that dimly lighted back room. And one day she looked up from an intent, mindless study of the pattern of the stained, old counter—and there was Jack Garson!

It was as simple as that. There he stood, not much older-looking after ten years, a little leaner of face perhaps, and there were tired lines all around his dark-brown eyes. While she stared in dumb paralysis, he said:

"I had to come, of course. You were the first emotional tie I had, and also the last; when I wrote the letter, I didn't realize how strong that emotion still was. What's all this about?"

She thought with a flaming intensity: Often, in the past, Dr. Lell had vanished for brief periods during the day hours; once she had seen him disappear into the flamboyant embrace of the light shed by the machine. Twice, she had opened the door to speak to him, and found him gone!

All accidental observations! It meant he had stepped scores of times into his own world when she hadn't seen him and—

*Please let this be one of the times when he was away!*

A second thought came, so fierce, so sharply focused that it made a stabbing pain inside her head: She must be calm. She must hold her mind away from give-away thoughts, if it was not already ages too late.

Her voice came into the silence like a wounded, fluttering bird, briefly stricken by shock, then galvanized by agony:

"Quick! You must go—till after six! Hurry! Hurry!"

Her trembling hands struck at his chest, as if

by those blows she would set him running for the door. But the thrust of her strength was lost on the muscles of his breast, defeated by the way he was leaning forward. His body did not even stagger.

Through a blur, she saw he was staring down at her with a grim, set smile. His voice was hard as chipped steel as he said:

"Somebody's certainly thrown a devil of a scare into you. But don't worry! I've got a revolver in my pocket. And don't think I'm alone in this. I wired the Calonian embassy at Washington, then notified the police here of their answer: no knowledge of this place. The police will arrive in minutes. I came in first to see that you didn't get hurt in the shuffle. Come on—outside with you, because—"

It was Norma's eyes that must have warned him, her eyes glaring past him. She was aware of him whirling to face the dozen men who were trooping out of the back room. The men came stolidly, and she had time to see that they were short, squat, ugly creatures, more roughly built than the lean, finely molded Dr. Lell; and their faces were not so much evil as half dead with unintelligence.

A dozen pair of eyes lighted with brief, animal-like curiosity, as they stared at the scene outside the window; then they glanced indifferently at herself and Jack Garson and the revolver he was holding so steadily; finally, their interest fading visibly, their gazes reverted expectantly to Dr. Lell, who stood smiling laconically on the threshold of the doorway.

"Ah, yes, Professor Garson, you have a gun, haven't you? And the police are coming. Fortunately, I have something here that may convince you of the uselessness of your puny plans."

His right hand came from behind his back, where he had been half hiding it. A gasp escaped from Norma as she saw that in it he held a blazing ball, a globe of furious flame, a veritable ball of fire.

The thing burned there in his palm, crude and terrible in the illusion of incredible, destroying incandescence. The mockery in Dr. Lell's voice was utterly convincing, as he said in measured tones *at her*:

"My dear Miss Matheson, I think you will agree that you will not offer further obstacles to our purpose, now that we have enlisted this valuable young man into the invincible armies of the Glorious—and, as for you, Garson, I suggest you drop that gun before it burns off your hand. It—"

His words were lost in the faint cry that came from Jack Garson. Amazed, Norma saw the gun fall to the floor, and lie there, burning with a white-hot, an abnormal violence.

"Good Heaven!" said Jack Garson; and Norma

saw him stare at the weapon enthralled, mindless of danger, as it shrank visibly in that intense fire.

In seconds, there was no weapon, no metal; the fire blinked out—and where it had been the floor was not even singed.

From Dr. Lell came a barked command, oddly twisted, foreignish words that nevertheless sounded like: "Grab him!"

She looked up, abruptly sick; but there was no fight. Jack Garson did not even resist, as the wave of beast men flowed around him. Dr. Lell said:

"So far, professor, you haven't made a very good showing as a gallant rescuer. But I'm glad to see that you have already recognized the hopelessness of opposing us. It is possible that, if you remain reasonable, we will not have to destroy your personality. But now—"

Urgency sharpened his tone. "I had intended to wait and capture your burly policemen, but as they have not arrived at the proper moment—a tradition with them, I believe—I think we shall have to go without them. It's just as well, I suppose."

He waved the hand that held the ball of fire, and the men carrying Jack Garson literally ran into the back room. Almost instantly, they were out of sight. Norma had a brief glimpse of the machine blazing into wondrous life; and then there was only Dr. Lell striding forward, leaning over the bench, his eyes glaring pools of menace.

"Go upstairs instantly! I don't think the police will recognize you—but if you make one false move, *he* will pay. Go—quickly!"

As she hurried past the window on semiliquid legs, she saw his tall figure vanish through the door into the back room. Then she was climbing the stairs.

Halfway up, her movements slowed as if she had been struck. Her mirror told the story of her punishment. The lean face of a woman of fifty-five met her stunned gaze.

The disaster was complete. Cold, stiff, tearless, she waited for the police.

For Garson, the world of the future began as a long, dim corridor that kept blurring before his unsteady vision. Heavy hands held him erect as he walked and—a wave of blur blotted the uncertain picture—

When he could see again, the pressure of unpleasant hands was gone from him, and he was in a small room, sitting down. His first dim impression was that he was alone, yet when he shook himself, and his vision cleared, he saw the desk; and behind the desk, a man.

The sight of that lean, dark, saturnine figure shocked electrically along his nerves, instantly galvanized a measure of strength back into his body. He leaned forward, his attention gathered



on the man; and that was like a signal. Dr. Lell said derisively:

"I know. You've decided to co-operate. It was in your mind even before we left the presence of . . . er . . . pardon the familiarity . . . of Norma, to whose rescue you came with such impetuous gallantry. Unfortunately, it isn't only a matter of making up your mind."

There was a quality of sneer in the man's voice that sent an uneasy current through Garson. He shook himself mentally, trying to clear the remnants of weakness out of his system.

He thought, not coherently, not even chronologically: Lucky he was here in this room. Damned lucky they hadn't sprung a complication of futuristic newness on him, and so disorganized his concentration. Now there was time to gather his thoughts, harden his mind to every conceivable development, discount surprises, and stay alive.

He said: "It's quite simple. You've got Norma. You've got me in your power, here in your own age. I'd be a fool to resist."

Dr. Lell regarded him almost pityingly for a moment. And then—there was no doubt of the sneer as he spoke:

"My dear Professor Garson, discussion at this point would be utterly futile. My purpose is merely to discover if you are the type we can use in our laboratories. If you are not, the only alternative is the depersonalizing chamber. I can say this much: men of your character type have not, on the average, been successful in passing our tests."

That was real; every word like a penetrating edged thing. Actually, in spite of his sneers and his amused contempt—actually this man was indifferent to him. There was only the test, whatever that was; and his own conscious life at stake. The important thing was to stay calm, and to stick leechlike to this one tremendous subject. Before he could speak, Dr. Lell said in a curiously flat voice:

"We have a machine that tests human beings for degree of recalcitrancy. The Observer Machine will speak to you now!"

"What is your name?" said a voice out of the thin air beside Garson.

Garson jumped; his brain staggered, literally; and there was a terrible moment of unbalance. The dim, dismayed thought came that, in spite of determination, he had been caught off guard; and there was the still vaguer thought that, without his being aware of it, he had actually been in a state of dangerous tension.

With a terrific effort he caught himself. He saw that Dr. Lell was smiling again, and that helped! Trembling, he leaned back in his chair; and, after a moment, he was sufficiently recovered to feel a surge of anger at the way the chill

clung to his body, and at the tiny quaver in his voice, as he began to answer:

"My name is John Bellmore Garson—age thirty-three—professor of physics at the University of—research scientist—blood type number—"

There were too many questions, an exhaustive drain of detail out of his mind, the history of his life, his aspirations. In the end, the deadly truth was a cold weight inside him. His life, his conscious life, was at stake now—this minute! Here was not even the shadow of comedy, but a precise, thorough, machinelike grilling. He must pass this test or—

"Dr. Lell!" The insistent voice of the machine broke in. "What is the state of this man's mind at this moment?"

Dr. Lell said promptly, coolly: "A state of tremendous doubt. His subconscious is in a turmoil of uncertainty. I need hardly add that his subconscious knows his character."

Garson drew a deep breath. He felt utterly sick at the simple way he had been disintegrated. And by one newness! A machine that needed neither telephone nor radio—if it was a machine! His voice was a rasping thing in his own ears, as he snapped:

"My subconscious can go straight to hell! I'm a reasonable person. I've made up my mind. I play ball with your organization to the limit."

The silence that followed was unnaturally long; and when at last the machine spoke, his relief lasted only till its final words penetrated. The disembodied voice said coldly:

"I am pessimistic—but bring him over for the test after the usual preliminaries!"

Preliminaries! Was it possible that this mind-shaking test had been but the preliminary to the preliminary of the real test?

Rigid with dismay, he stood up to follow the bleakly smiling Dr. Lell out of the room.

He began to feel better, as he walked behind Dr. Lell along the gray-blue hallway. In a small way, he had won. Whatever these other tests were, how could they possibly ignore his determined conviction that he must co-operate? As for himself—

For himself, there was this colossal world of the future. Surely, he could resign himself to his lot for the duration of this silly war and lose himself in the amazing immensity of a science that included time machines, fireballs, and Observer Machines that judged men with a cold, remorseless logic and spoke out of thin air.

He frowned. There must be some trick to that, some "telephone" in the nearby wall. Damned if he'd believe that any force could focus sound without intermediary instruments, just as Norma couldn't have been made older in the police station without—

The thought collapsed.

For a paralyzed moment, he stared down where the floor had been.

It wasn't there!

With a gasp, Garson grabbed at the opaque wall; and then, as a low laugh from the doctor, and the continued hardness beneath his feet, told the extent of the illusion, he controlled himself—and stared in utter fascination.

Below him was a section of a room, whose limits he could not see because the opaque walls barred his vision on either side. A milling pack of men filled every available foot of space that he could see. Men, oh— The ironic voice of Dr. Lell pierced his stunned senses, echoing his thoughts with brittle words:

"Men, yes, men! Recruits out of all times. Soldiers-to-be from the ages, and not yet do they know their destiny."

The voice ended, but the indescribable scene went on. Men squirmed, shoved, fought. Upturned faces showed stark puzzlement, anger, fear, amusement, and all the combinations of all the possible emotions. There were men in clothes that sparkled with every color of the rainbow; there were the drab-clothed, the in-betweens; there were—

Garson caught his flitting mind into an observant tightness. In spite of the radical difference in the dress styles of the men who floundered down there like sheep in a slaughterhouse pen, there was a sameness about them that could only mean one thing. They were all—

"You're right!" It was that cool, taunting voice again. "They're all Americans, all from this one city now called Delpha. From our several thousand machines located in the various ages of Delpha, we obtain about four thousand men an hour during the daylight hours. What you see below is the main receiving room.

"The recruits come sliding down the time chutes, and are promptly revived and shoved in there. Naturally at this stage there is a certain amount of confusion. But let us proceed further."

Garson scarcely noticed as the solid floor leaped into place beneath his feet. The vague thought did come that at no time had he seen Dr. Lell press a button or manipulate a control of any kind, neither when the Observer Machine spoke with ventriloquistic wizardry, nor when the floor was made invisible, nor now when it again became opaque. Possibly here was some form of mental control. His mind leaped to a personal danger:

What was the purpose of this—preliminary? Were they showing him horror, then watching his reactions? He felt abrupt rage. What did they expect from a man brought up in twentieth-century environment? Nothing here had anything to do with his intellectual conviction that he was

caught and that therefore he must co-operate. But—four thousand men in one hour from one city! Why, it meant—

"And here," Dr. Lell said, and his voice was as calm as the placid waters of a pond, "we have one of several hundred smaller rooms that make a great circle around the primary time machine. You can see the confusion has diminished."

Truth, Garson thought, had never suffered greater understatement than those words. There was absolute absence of confusion. Men sat on chesterfields. Some were looking at books; others chatted like people in a silent movie; their lips moved, but no sound penetrated the illusive transparency of the floor.

"I didn't," came that calm, smooth, confident voice, "show you the intermediate stage that leads up to this clublike atmosphere. A thousand frightened men confronted with danger could make trouble. But we winnow them down psychologically and physically till we have one man going through that door at the end of the room—ah, there's one going now. Let us by all means follow him. You see, at this point we dispense with coddling and bring forth the naked reality."

The reality was a metal, boiler-shaped affair, with a furnacelike door; and four beast humans simply grabbed the startled newcomer and thrust him feet first into the door.

The man must have screamed; for, once, his face twisted upward, and the contorted fear, the almost idiotic gaping and working of the mouth came at Garson like some enormous physical blow. As from a great distance, he heard Dr. Lell say:

"It helps at this stage to disorganize the patient's mind, for the depersonalizing machine can then do a better job."

Abruptly, the impersonalness went out of his voice. In an icily curt tone, he said: "It is useless continuing this little lecture tour. To my mind, your reactions have fully justified the pessimism of the Observer. There will be no further delay."

The deadly words scarcely touched him. He was drained of emotion, of hope; and that first blaze of scientific eagerness was a dull, aching ember.

After that incredible succession of blows, he accepted the failure verdict as—merited!

It was consciousness of the sardonic profile of his captor that brought the first emergence from that dark defeatism. Damn it, there was still the fact that he was logistically committed to this world. He'd have to harden himself, narrow his emotions down to a channel that would include only Norma and himself. If these people and their machine condemned on the basis of feelings, then he'd have to show them how stony-cold his intellect could be.

He braced himself. Where the devil was this all-knowing machine?

The corridor ended abruptly in a plain, black door, exactly like all the other doors, that held not the faintest promise of anything important beyond.

Amazingly, it opened onto a street!

A street of the city of the future!

Garson stiffened. His brain soared beyond contemplation of his own danger in a burning anticipation; and then, almost instantly, began to sag.

Puzzled, he stared at a scene that was utterly different from his expectations. In a vague way, mindful of the effects of war, he had pictured devastated magnificence. Instead—

Before his gaze stretched a depressingly narrow, unsightly street. Dark, unwashed buildings towered up to hide the sun. A trickle of the squat, semihuman men and women, beastlike creatures, moved stolidly along narrow areas of pavement marked off by black lines, that constituted the only method of distinguishing the road from the sidewalk.

The street stretched away for miles; and it was all like that, as far as he could see clearly. Intensely disappointed, conscious even of disgust, Garson turned away—and grew aware that Dr. Lell was staring at him with a grim smile. The doctor said laconically:

"What you are looking for, Professor Garson, you will not find, not in this or similar cities of the 'Slaves,' but in the palace cities of the Glorious and the Planetarians—"

He stopped, as if his words had brought an incredibly unpleasant thought; to Garson's amazement, his face twisted with rage; his voice almost choked, as he spat: "Those damnable Planetarians! When I think what their so-called ideals are bringing the world to, I—"

The spasm of fury passed; he said quietly: "Several hundred years ago, a mixed commission of Glorious and Planetarians surveyed the entire physical resources of the Solar System. Men had made themselves practically immortal; theoretically, this body of mine will last a million years, barring major accidents. It was decided available resources would maintain ten million men on Earth, ten million on Venus, five million on Mars and ten million altogether on the moons of Jupiter for one million years at the then existing high standard of consumption, roughly amounting to about four million dollars a year per person at 1941 values.

"If in the meantime Man conquered the stars, all these figures were subject to revision, though then, as now, the latter possibility was considered as remote as the stars themselves. Under examination, the problem, so apparently simple, has shown itself intricate beyond the scope of our mathematics."

He paused, and Garson ventured: "We had versions of planned states in our time, too, but they always broke down because of human nature. That seems to have happened again."

Not for a second had Garson considered his statement dangerous. The effect of his words was startling. The lean, handsome face became like frozen marble. Harshly, Dr. Lell said:

"Do not dare to compare your Nazism or Communism to—us! We are the rulers of all future time, and who in the past could ever stand against us if we chose to dominate? We shall win this war, in spite of being on the verge of defeat, for we are building the greatest time-energy barrier that has ever existed. With it, we shall destroy—or no one will win! We'll teach those moralistic scum of the planets to prate about man's rights and the freedom of the spirit. Blast them all!"

It was stunning. There was a passion of pride here, a violence of emotion altogether outside any possible anticipation. And yet—the fact remained that his own opinions were what they were, and he could not actually hope to conceal them from either Dr. Lell or the Observer; so—

He said: "I see an aristocratic hierarchy and a swarm of beast-men slaves. How do *they* fit into the picture, anyway? What about the resources they require? There certainly seem to be hundreds of thousands in this city alone."

The man was staring at him in rigid hostility, that brought a sudden chill to Garson's spine. Genuinely, he hadn't expected that any reasonable statement he might make would be used against him. Dr. Lell said too quietly:

"Basically, they do not use any resources. They live in cities of stone and brick, and eat the produce of the indefatigable soil."

His voice was suddenly as sharp as steel. "And now, Professor Garson, I assure you that you have already condemned yourself. The Observer is located in that metal building across the street because the strain of energy from the great primary time machine would affect its sensitive parts if it was any nearer. I can think of no other explanation that you require, and I certainly have no desire to remain in the company of a man who will be an automaton in half an hour. *Come along!*"

Briefly, there was no impulse in him to argue, nothing but awareness of this monstrous city. Here it was again, the old, old story of the aristocrat justifying his black crime against his fellow man. Originally, there must have been deliberate physical degradation, deliberate misuse of psychology. The very name by which these people called themselves, the Glorious, seemed a heritage from days when dastardly and enormous





efforts must have been made to arouse hysterical hero worship in the masses.

Dr. Lell's dry voice said: "Your disapproval of our slaves is shared by the Planetarians. They also oppose our methods of depersonalizing our recruits. It is easy to see that they and you have many things in common, and if only you could escape to their side—"

With an effort, Garson pulled himself out of his private world. He was being led on, not even skillfully; and it was only too apparent now that every word Dr. Lell spoke had the purpose of making him reveal himself. For a moment, he was conscious of genuine impatience; then puzzlement came.

"I don't get it," he said. "What you're doing cannot be bringing forth any new facts. I'm the product of my environment. You know what that environment is, and what type of normal human being it must inevitably produce. As I've said, my whole case rests on co-oper—"

It was the difference in the texture of the sky at the remote end of that street that snatched his attention. A faint, unnatural, scarlet tinge it was, like a mist, an unnatural, unearthly sunset, only it was hours yet before the sun would set.

Astoundingly, he felt himself taut, growing tauter. He said in a tense voice:

"What's that?"

"That," Dr. Lell's curt, amused voice came at him, "is the war."

Garson restrained a crazy impulse to burst out laughing. For weeks speculation about this gigantic war of the future had intertwined with his gathering anxiety about Norma. And now this—this red haze on the horizon of an otherwise undamaged city—the war!

The dark flash of inner laughter faded, as Dr. Lell said:

"It is not so funny as you think. Most of Delpa is intact because it is protected by a local time-energy barrier. Delpa is actually under siege, fifty miles inside enemy territory."

He must have caught the thought that came to Garson. He said good-humoredly: "You're right. All you have to do is get out of Delpa, and you'll be safe."

Garson said angrily: "It's a thought that would occur naturally to any intelligent person. Don't forget you have Miss Matheson."

Dr. Lell seemed not to have heard. "The red haze you see is the point where the enemy has neutralized our energy barrier. It is there that they attack us unceasingly day and night with an inexhaustible store of robot machines."

"We are unfortunate in not having the factory capacity in Delpa to build robot weapons, so we use a similar type manned by depersonalized humans. Unfortunately, again, the cost in lives is high: ninety-eight percent of recruits. Every day,

too, we lose about forty feet of the city, and, of course, in the end, Delpa will fall."

He smiled, an almost gentle smile. Garson was amazed to notice that he seemed suddenly in high good humor. Dr. Lell said:

"You can see how effective even a small time-energy barrier is. When we complete the great barrier two years hence, our entire front line will be literally impregnable. And now, as for your co-operation argument, it's worthless. Men are braver than they think, braver than reason. But let's forget argument. In a minute, the machine will give us the truth of this matter—"

At first sight, the Observer Machine was a solid bank of flickering lights that steadied oddly, seemed almost to glare as they surveyed him. Garson stood quite still, scarcely breathing; a dim thought came that this—this wall of black metal machine and lights was utterly unimpressive.

He found himself analyzing the lack: It was too big and too stationary. If it had been small and possessed of shape, however ugly, and *movement*, there might have been a suggestion of abnormal personality.

But here was nothing, but a myriad of lights. As he watched, the lights began to wink again. Abruptly, they blinked out, all except a little colored design of them at the bottom right-hand corner.

Behind him, the door opened, and Dr. Lell came into the silent room. "I'm glad," he said quietly, "that the result was what it was. We are desperately in need of good assistants.

"To illustrate," he went on, as they emerged into the brightness of the unpleasant street, "I am, for instance, in charge of the recruiting station in 1941, but I'm there only when an inter-time alarm system has warned me. In the interim, I am employed on scientific duties of the second order—first order being work that, by its very nature, must continue without interruption."

They were back in the same great building from which he had come; and ahead stretched the same gray-blue, familiar corridor, only this time Dr. Lell opened the first of several doors. He bowed politely.

"After you, professor!"

A fraction too late, Garson's fist flailed the air where that dark, strong face had been. They stared at each other, Garson tight-lipped, his brain like a steel bar. The superman said softly:

"You will always be that instant too slow, professor. It is a lack you cannot remedy. You know, of course, that my little speech was designed to keep you quiet during the trip back here, and that, actually, you failed the test. What you do not know is that you failed startlingly, with a recalcitrancy grading of 6, which is the very worst, and intelligence AA plus, almost the

best. It is too bad because we genuinely need capable assistants. I regret—"

"Let me do the regretting!" Garson cut him off roughly. "If I remember rightly, it was just below here that your beast men were forcing a man into the depersonalizing machine. Perhaps, on the staircase going down, I can find some way of tripping you up, and knocking that little gun you're palming right out of your hand."

There was something in the smile of the other that should have warned him—a hint of sly amusement. Not that it would have made any difference. Only—

He stepped through the open doorway toward the gray-blue, plainly visible stairway. Behind him, the door clicked with an odd finality. Ahead there was—

Amazingly, the staircase was gone. Where it had been was a large boilerlike case with a furnace-shaped door. Half a dozen beast men came forward—a moment later, they were shoving him toward that black hole of a door—

The second day Norma took the risk. The windows of the recruiting station still showed the same blank interior; walls stripped by the police of Colonialian slogans, and signs and newspaper clippings trampled all over the floor. The door to the back room was half closed—too dark to see the interior.

It was noon. With drummed-up courage, Norma walked swiftly to the front entrance. The lock clicked open smoothly, and she was inside—pushing at that back door.

The machine was not there. Great dents showed in the floor, where it had malignantly crouched for so many months. But it was gone, as completely as Dr. Lell, as completely as the creature-men and Jack Garson.

Back in her rooms, she collapsed onto the bed, and lay quivering from the dreadful nervous reaction of that swift, illegal search.

On the afternoon of the fourth day, as she sat staring at the meaningless words of a book, there was an abrupt tingling in her body. Somewhere a machine—the machine—was vibrating softly.

She climbed to her feet, the book forgotten on the window sill, where, freakishly, it had fallen. But the sound was gone. Not a tremor touched her taut nerves. The thought came: imagination! The pressure was really beginning to get her.

As she stood there stiff, unable to relax, there came the thin squeal of a door opening downstairs. She recognized the sound instantly. It was the back door that led onto the vacant back lot, which her window overlooked. The back door opening and shutting!

She stared, fascinated, as Dr. Lell stalked into view. Her thought of awareness of him was so sharp that he must have caught it—but he did

not turn. In half a minute he was gone, out of her line of vision.

On the fifth day, there was hammering downstairs, carpenters working. Several trucks came, and there was the mumbling sound of men talking. But it was evening before she dared venture downstairs. Through the window, then, she saw the beginning of the changes that were being wrought.

The old bench had been removed. The walls were being redone; there was no new furniture yet, but a rough, unfinished sign leaned against one wall. It read:

## EMPLOYMENT BUREAU

### MEN WANTED

*Men wanted!* So that was it. Another trap for men! Those ravenous armies of the Glorious must be kept glutted with fodder. The incredible war up there in that incredible future raged on. And she—

Quite dumbly, she watched as Dr. Lell came out of the back room. He walked toward the front door, and there was not even the impulse in her to run. She stood there, as he opened the door, came out, meticulously closed the door behind him, and then, after a moment, stood beside her, as silent as she, staring into the window. Finally:

"I see you've been admiring our new set-up!"

His voice was matter-of-fact, completely lacking in menace. She made no reply; he seemed to expect none, for he said almost immediately, in that same conversational tone:

"It's just as well that it all happened as it did. Nothing I ever told you has been disproved. I said that investigation had shown the machine to be here several years hence. Naturally, we could not examine every day or week of that time. This little episode accordingly escaped our notice, but did not change the situation.

"As for the fact that it will be an employment bureau henceforth, that seemed natural at the period of our investigation because this war of your time was over then."

He paused, and still there was no word that she could think of saying. In the gathering darkness, he seemed to stare at her.

"I'm telling you all this because it would be annoying to have to train someone else for your position, and because you must realize the impossibility of further opposition.

"Accept your situation. We have thousands of machines similar to this, and the millions of men flowing through them are gradually turning the tide of battle in our favor. We must win; our cause is overwhelmingly just; we are Earth against all the planets; Earth protecting herself

against the aggression of a combination of enemies armed as no powers in all time have ever been armed. We have the highest moral right to draw on the men of Earth of every century to defend their planet.

"However"—his voice lost its objectivity, grew colder—"if this logic does not move you, the following rewards for your good behavior should prove efficacious. We have Professor Garson; unfortunately, I was unable to save his personality. Definite tests proved that he would be a recalcitrant, so—

"Then there is your youth. It will be returned to you on a salary basis. Every three weeks you will become a year younger. In short, it will require two years for you to return to your version of twenty."

He finished on a note of command: "A week from today, this bureau will open for business. You will report at nine o'clock. This is your last chance. Good-by."

In the darkness, she watched his shape turn; he vanished into the gloom of the building.

She had a purpose. At first it was a tiny mind-growth that she wouldn't admit into her consciousness. But gradually embarrassment passed, and the whole world of her thought began to organize around it.

It began with the developing realization that resistance was useless. Not that she believed in the rightness of the cause of Dr. Lell and of this race that called itself the Glorious, although his story of Earth against the planets had put the first doubt into her brain. As—she knew—he had intended it should.

The whole affair was simpler than that. One woman had set herself against the men of the future—what a silly thing for one woman to do!

There remained Jack Garson!

If she could get him back, poor, broken, strange creature that he must be now with his personality destroyed—somehow she would make amends for having been responsible, but—

She thought: What madness to hope that they'd give him back to her, ever! She was the tiniest cog in a vast war machine. Nevertheless, the fact remained:

She must get him back!

The part of her brain that was educated, civilized, thought: What an elemental purpose, everything drained out of her but the basic of basics, one woman concentrating on the one man.

But the purpose was there, unquenchable!

The slow months dragged; and, once gone, seemed to have flashed by. Suddenly, the Great War was over—and swarms of returned soldiers made the streets both dangerous and alive.

One night she turned a corner and found herself on a street she hadn't visited for some time.



She stopped short, her body stiffening. The street ahead was thick with men—but their presence scarcely touched her mind.

Above all that confusion of sound, above the catcalls, above the roar of streetcars and automobiles, above the totality of the cacophonous combination, there was another sound, an incredibly softer sound—the whisper of a time machine.

She was miles from the employment bureau with its machine, but the tiny tremor along her nerves was unmistakable.

She pressed forward, blind to everything but the brilliantly lighted building that was the center of the attention of the men. A man tried to put his arm through hers. She jerked free automatically. Another man simply caught her in an embrace, and for brief seconds she was subjected to a steel-hard hug and a steel-hard kiss.

'Purpose gave her strength. With scarcely an effort, she freed one arm and struck at his face. The man laughed good-humoredly, released her, but walked beside her.

"Clear the way for the lady!" he shouted.

Almost magically, there was a lane; and she was at the window. There was a sign that read:

## W A N T E D

RETURNED SOLDIERS FOR DANGEROUS ADVENTURE

GOOD PAY!

No emotion came to the realization that here was another trap for men. In her brain, she had space only for impression.

The impression was of a large square room, with a dozen men in it. Only three of the men were recruits; of the other nine, one was an American soldier dressed in the uniform of World War I. He sat at a desk pounding a typewriter. Over him leaned a Roman legionnaire of the time of Julius Cæsar, complete with toga and short sword. Beside the door, holding back the pressing throng of men, were two Greek soldiers of the time of Pericles.

The men and the times they represented were unmistakable to her, who had taken four years of university Latin and Greek, and acted in plays of both periods in the original languages.

There was another man in an ancient costume, but she was unable to place him. At the moment, he was at a short counter interviewing one of the three recruits.

Of the four remaining men, two wore uniforms that could have been developments of the late twentieth century: the cloth was of a light-yellow texture, and both men had two pips on their shoulders. The rank of lieutenant was obviously still in style when they were commissioned.

The remaining two men were simply strange, not in face, but in the cloth of their uniforms.

Their faces were of sensitive, normal construction; their uniforms consisted of breeches and neatly fitting coats all in blue, a blue that sparkled as from a million needlelike diamond points. In a quiet, blue, intense way, they shone.

One of the recruits was led to the back door, as she watched, her first awareness that there was a back door. The door opened; she had the briefest glimpse of a towering machine and a flashing picture of a man who was tall and dark of face, and who might have been Dr. Lell. Only he wasn't. But the similarity of race was unmistakable.

The door closed, and one of the Greeks guarding the outer entrance said: "All right, two more of you fellows can come in!"

There was a struggle for position, brief but incredibly violent. And then the two victors, grinning and breathing heavily from their exertion, were inside. In the silence that followed, one of the Greeks turned to the other, and said in a tangy, almost incomprehensible version of ancient Greek:

"Sparta herself never had more willing fighters. This promises to be a good night's catch!"

It was the rhythm of the words, and the colloquial gusto with which they were spoken that almost destroyed the meaning for her. After a moment, however, she made the mental translation. And now the truth was unmistakable. The men of Time had gone back even to old Greece, probably much farther back, for their recruits. And always they had used every version of bait, based on all the weaknesses and urgencies in the natures of men.

"Fight For Calonia"—an appeal to idealism! "Men Wanted"—the most basic of all appeals, work for food, happiness, security. And now, the appeal variation was for returned soldiers—adventure—with pay!

Diabolical! And yet so effective that they could even use men who had formerly been caught on the same brand of fly paper as recruiting officers—These men must be of the recalcitrant type, who fitted themselves willingly into the war machine of the Glorious One.

Traitors!

Abruptly ablaze with hatred for all nonrecalcitrants, who still possessed their personalities, she whirled away from the window.

She was thinking: Thousands of such machines. The figures had been meaningless before, but now, with just one other machine as a tremendous example, the reality reared up into a monstrous thing.

To think that there was a time when she had actually set her slim body and single, inadequate mind against *them*!

There remained the problem of getting Jack

Garson out of the hell of that titanic war of the future!

At night, she walked the streets, because there was always the fear that in the apartment her thoughts, her driving deadly thoughts, would be—tapped. And because to be inclosed in those narrow walls above the machine that had devoured so many thousands of men was—intolerable!

She thought as she walked—over and over she thought of the letter Jack Garson had written her before he came in person. Long destroyed, that letter, but every word was emblazoned on her brain; and of all the words of it, the one sentence that she always returned to was: "In your position, I would ask myself one question: Was there anything, any metal, *anything*, upon my person, that might have been placed there?"

One day, as she was wearily unlocking the door of her apartment, the answer came. Perhaps it was the extra weariness that brought her briefly closer to basic things. Perhaps her brain was simply tired of slipping over the same blind spot. Or perhaps the months of concentration had finally earned the long-delayed result.

Whatever the reason, she was putting the key back into her purse when the hard, metallic feel of it against her fingers brought wild, piercing realization.

The key, metal, the key, metal, the key—

Desperately, she stopped the mad repetition. The apartment door slammed behind her, and like some terrorized creature she fled down the dark stairs into the glare of the night streets.

Impossible to return till she had calmed the burning, raging chaos that was in her mind. Until she had—made sure!

After half an hour, the first flash of coherence came. In a drugstore, she bought a night bag and a few fill-ins to give it weight. A pair of small pliers, a pair of tweezers—in case the pliers were too large—and a small screwdriver completed her equipment. Then she went to a hotel.

The pliers and the tweezers were all she needed. The little bulbous cap of the skeleton-type key yielded to the first hard pressure. Her trembling fingers completed the unscrewing—and she found herself staring at a tiny, glowing point, like a red-hot needle protruding from the very center of the tube that was the inside of the key.

The needle vanished into an intricate design of spiderlike wires, all visible in the glow that shed from them—

The vague thought came that there was probably terrific, communicable energies here. But somehow there came no sense of restraint from the idea. Only enough reality of danger struck her to make her wrap her flimsy lace handkerchief around the tweezers—and then she touched the shining, protruding needle point.

It yielded the slightest bit to her shaky touch. Nothing happened. It just glowed there.

Dissatisfied, she put the key down and stared at it. So tiny, so delicate a machine actually disturbed to the extent of one sixteenth of an inch displacement—and nothing happened. She—

A sudden thought sent her to the dresser mirror. A forty-year-old face stared back at her.

Months now since she had returned to twenty. And now, in a flash, she was forty. The little touch of the pin against the needle's end, pushing, had aged her twenty years.

That explained what had happened at the police station. It meant—if she could only pull it back—She fought to steady her fingers, then applied the tweezers.

She was twenty again!

Abruptly weak, she lay down on the bed. She thought:

Somewhere in the world of time and space was the still-living body of the man that had been Jack Garson. But for him she could throw this key *thing* into the river three blocks away, take the first train East or West or South—anywhere—and the power of the machine would be futile against her. Dr. Lell would not even think of searching for her once she had lost herself in the swarm of humankind.

How simple it all really was. For three long years, their power over her had been the key and its one devastating ability to age her.

Or was that *all*?

Startled, she sat up. Did they count, perhaps, on their victims believing themselves safe enough to keep the key and its magic powers of rejuvenation? She, of course, because of Jack Garson, was bound to the key as if it was still the controller and not she. But the other incentive, now that she had thought of it, was enormous. And—

Her fingers shook as she picked up the dully gleaming key with its glowing, intricate interior. Incredible that they could have allowed so precious an instrument to pass so easily into the hands of an alien, when they must have known that the probability of discovery was not—improbable!

An idea came; and, with it, abrupt calm. With suddenly steady fingers, she picked up the tweezers, caught the protruding glow point of the key between the metal jaws, and, making no attempt to pull or push, twisted screw-wise.

There was a tiny, almost inaudible click. Her body twanged like a taut violin string, and she was falling—falling into dark, immeasurable distance.

Out of that night, a vaguely shining body drifted toward her, a body human yet not human; there was something about the head and the shoulders, something physically different that some-

how eluded her slow thought; and in that strange, superhuman head were eyes that blazed like jewels, seemed literally to pierce her. The voice that came couldn't have been sound, for it was inside her brain, and it said:

"With this great moment, you enter upon your power and your purpose. I say to you, the time-energy barrier must not be completed. It will destroy all the ages of the Solar System. The time-energy barrier must not, *not*, NOT be completed—"

The body faded, and was gone into remoteness. The very memory of it became a dim mind-shape. There remained the darkness, the jet, incredible darkness.

Abruptly, she was in a material world. She seemed to be half-slumped, half-kneeling, one leg folded under her in the exact position she had occupied on the bed. Only she must have drooped there unconscious for long moments; her knees ached and ached with the hard, pressing pain of position. And—beneath the silk of her stockings was, not the hotel bed, but—metal!

It was the combination of surprise, the aloneness, and the stark fact of the mind-destroying thing that was going to happen that unnerved Garson. Involuntarily, he started to squirm, then he was writhing, his face twisting in strange mental agony; and then the strength of those rough, stolid hands holding him seemed to flow somehow into his nerves.

Almost literally, he clenched his mind, and was safe from madness!

There were no hands touching him now. He lay, face downward on a flat, hard surface; and at first there was only the darkness and a slow return of the sense of aloneness.

Vague thoughts came, thoughts of Norma and of the coincidence that had molded his life, seemingly so free for so many years, yet destined to find its ending here in this black execution chamber—for he was being destroyed here, though his body might live on for a few brief mindless hours. Or days. Or weeks. It mattered not.

The thing was fantastic. This whole damned business was a nightmare, and in a minute he'd wake up and—

At first the sound was less than a whisper, a stealthy noise out of remoteness, that prodded with an odd insistence at Garson's hearing. It quivered toward him in the blackness, edging out of inaudibility, a rasping presence that grew louder, louder—voices!

It exploded into a monstrous existence, a billion voices clamoring at his brain, a massive blare that pressed at him, *pressed him!*

Abruptly, the ferocity of the voices dimmed. They faded into distance, still insistent, somehow

reluctant to leave, as if there was something still left unsaid.

The end of sound came, and briefly there was utter silence. Then—there was a click. Light flooded at him from an opening a scant foot from his head.

Garson twisted and stared, fascinated. Daylight! From his vantage point, he could see the edge of a brick-and-stone building, a wretchedly old, worn building, a street of Delpa.

It was over. Incredibly it was over.

And nothing had happened. No, that wasn't it exactly. There were things in his mind, confusing things about the importance of loyalty to the Glorious, a sense of intimacy with his surroundings, pictures of machines and—nothing clear, except—

A harsh voice broke his amazed blur of thought. "Come on out of there, you damned slow poke!"

A square, heavy, brutal face was peering into the open door, a big, square-built young man with a thick neck, a boxer's flat nose, and unpleasant blue eyes.

Garson lay quite still. It was not that he intended to disobey. All his reason urged instant, automatic obedience until he could estimate the astounding things that had happened.

What held him there, every muscle stiff, was a new, tremendous fact that grew, not out of the meaning of the man's words, but out of the words themselves.

The language was not English. Yet he had understood—every word!

The sudden squint of impatient rage that flushed the coarse face peering in at him brought life to Garson's muscles. He scrambled forward, but it was the man's truck-driver hands that actually pulled him clear and deposited him with a jarring casualness face downward on the paved road.

He lay there for an electric instant, tense with an anger that congealed reluctantly before the thought: He dare not get mad. Or act the fool!

The terrific reality was that something had gone wrong. Somehow the machine hadn't worked all the way, and if he was crazy enough to wreck the great chance that offered—

He stood up slowly, wondering how an automaton, a depersonalized human being, should look and act.

"This way, damn you," said that bullying voice from behind him. "You're in the army now."

Satisfaction came into the voice: "Well, you're the last for me today. I'll get you fellows to the front, and then—"

"This way" led to a dispirited-looking group of men, about a hundred of them, who stood in two rows alongside a great, gloomy, dirty building. He walked stolidly to the end of the rear line, and for the first time realized how surpris-



ingly straight the formation of men were holding their lines, in spite of their dulled appearance.

"All right, all right," bellowed the square-jawed young man. "Let's get going. You've got some hard fighting ahead of you before this day and night are over—"

The contemptuous thought came to Garson, as he stared at the leader: this, then, was the type *they* picked for nonrecalcitrant training: the ignorant, blatant, amoral, sensual pigmen. No wonder he himself had been rejected by the Observer.

His eyes narrowed to slits as he watched the line of dead-alive men walk by him in perfect rhythm; he fell in step, his mind deliberately slow and ice-cold, cautiously exploring the strange knowledge in his brain that didn't fit with his—freedom!

That didn't fit with anything! A little group of sentences that kept repeating inside him:

"The great time-energy barrier is being built in Delpa. It must not be completed, for it will destroy the Universe. Prepare to do your part in its destruction; try to tell the Planetarians, but take no unnecessary risks. To stay alive, to tell the Planetarians: those are your immediate purposes. The time-energy barriers must not—NOT—"

Funny, he thought, funny! He squeezed the crazy thing out of his consciousness.

No trucks came gliding up to transport them; no streetcar whispered along in some superdevelopment of street-railway service; there was simply no machinery, nothing but those narrow avenues with their gray, sidewalkless length, like back alleys.

They walked to war; and it was like being in a dead, old, deserted city—deserted except for the straggle of short, thick, slow, stolid men and women who plodded heavily by, unsmiling, without so much as a side glance. As if they were but the pitiful, primitive remnant of a once-great race, and this city the proud monument to— No!

Garson smiled wryly. Of all the fools, getting romantic about this monstrosity of a city. All too evident it was, even without Dr. Lell's words as a reminder, that every narrow, dirty street, every squalid building had been erected—to be what it was.

And the sooner he got out of the place, and delivered to the Planetarians the queer, inexplicable message about the great time-energy barrier—

With a half shudder, with deliberate abruptness, he cut the thought. Damn it, he'd have to be careful. If one of the Glorious should happen to be around, and accidentally catch the free thought of what was supposed to be an automaton—next time there'd be no mistake.

Tramp, tramp, tramp! The pavement echoed

with the strange lifeless hollowness of a ghost city; and the tremendous thought came that he was here centuries, perhaps millenniums, into the future. What an awful realization to think that Norma poor, persecuted, enslaved Norma, whose despairing face he had seen little more than an hour ago, was actually dead and buried in the dim ages of the long ago.

And yet she was alive. Those six hundred billion bodies per minute of hers were somewhere in space and time, alive because the great time energy followed its casual, cosmic course of endless repetition, because life was but an accident as purposeless as the immeasurable energy that plunged grandly on into the unknown night that must be—somewhere!

Tramp, tramp— On and on, and his thought was a rhythm to the march— With an ugly start he came out of his reverie, and instantly grew abnormally aware of the nearness of the red haze in the sky ahead. Why, it wouldn't take ten minutes now, and they'd be *there*!

Machines glinted in the slanting rays of the warm, golden, sinking sun; machines that moved and—fought! A sick thrill struck Garson, the first shock of realization that this—this tiny segment of the battle of the ages was real, and near, and deadly.

Up there, every minute men were dying miserably for a cause their depersonalized minds did not even comprehend. Up there, too, was infinitesimal victory for the Planetarians, and a small, stinging measure of defeat for the Glorious. Forty feet a day, Dr. Lell had said.

Forty feet of city conquered every day. What a murderous war of attrition, what a bankruptcy of strategy. Or was it the ultimate nullification of the role of military genius, in that each side knew and practiced every rule of military science without error?—and the forty feet was simply the inevitable mathematical outcome of the difference in the potential in striking power of the two forces.

Forty feet a day. In a blaze of wonder, Garson stood finally with his troop a hundred yards from that unnatural battle front. Like a robot he stood stiffly among those robot men, but his eyes and mind fed in undiminished fascination at the deadly mechanical routine that was the offense and defense.

The Planetarians had seven major machines, and there were at least half a hundred tiny, swift, glittering craft as escort for each of the great—battleships! That was it: battleships and destroyers.

Against them, the Glorious had only destroyers, a host of darting, shining, torpedo-shaped craft that hugged the ground, and fought in an endlessly repeated, complicated maneuver.

Maneuver against maneuver! An intricate chess game—it was a game, an incredibly involved game whose purpose and method seemed to quiver just beyond the reach of his reason.

Everything revolved around the battleships. In some way they must be protected from energy guns, because no attempt was made to use anything like that. Somehow, too, cannon must be useless against them. There was none in sight, no attempt to hurtle great gobs of metal either at the machines or—by the Planetarians at the more than a hundred troops like his own, who stood at stiff attention so close to the front, so bunched that a few superexplosive shells of the future would have smashed them all.

Nothing but the battleships and the destroyers!

The battleships moved forward and backward and forward and backward and in and out, intertwining among themselves; and the destroyers of the Glorious darted in when the battleships came forward, and hung back when the battleships retreated; and always the destroyers of the Planetarians were gliding in to intercept the destroyers of the Glorious; and as the sun sank in a blaze of red beyond the green hills to the west, the battleships in their farthest forward thrust were feet closer than they had been at the beginning; and the sharply delineated red line of haze, that *must* be the point where the time-energy barrier was neutralized, was no longer lying athwart a shattered slab of rock—but on the ground feet nearer.

That was it. The battleships somehow forced the time-energy barrier to be withdrawn. Obviously, it would only be withdrawn to save it from a worse fate, perhaps from a complete neutralization over a wide front. And so a city was being won, inch by inch, foot by foot, street by street—only the intricate evolution of the battle, the why of that almost immeasurably slow victory, was as great a mystery as ever.

The grim thought came: If the odd, tremendous message that had come into his brain in that out-of-order depersonalizing machine was true, then the final victory would never come in time. Long before the forty-foot-a-day conquerors had gained the prize that was Delpa, the secret, super, time-energy barrier would be completed; and the devilish spirit of war would at last have won its senseless goal—complete elimination of the human race and all its works.

Night fell, but a glare of searchlights replaced the sun, and that fantastic battle raged on. No one aimed a gun or a weapon at the lights; each side concentrated with that strange, deadly intentness on its part of that intricate, murderous game; and troop after troop dissolved into the ravenous, incredible conflagration.

Death came simply to the automatons. Each in turn crowded into one of the torpedo-shaped



destroyers; and knowing—as he did—from the de-personalizing machine, that the tiny, man-sized tank was operated by thought control, flashed out into battle line.

Sometimes the end came swiftly, sometimes it was delayed, but sooner or later there was metallic contact with the enemy; and that was all that was needed. Instantly, the machine would twist and race toward the line of waiting men; the next victim would drag out the corpse, crawl in himself and—

There were variations. Machines clashed with the enemy and died with their drivers; or darted with frantic aimlessness, out of control. Always, swift, metallic scavengers raced from both sides to capture the prize; and sometimes the Planetarians succeeded, sometimes the Glorious.

Garson counted: one, two, three—less than four hundred men ahead of him—and the realization of how close his turn was brought the perspiration coldly to his face. Minutes! Damn it, damn it, he had to solve the rules of this battle, or go in there, without plan, without hope.

Seven battleships, scores of destroyers to each battleship and all acting as one unit in one involved maneuver and—

And, by heaven, he had a part of the answer. *One* unit. Not seven battleships out there, but one in the form of seven. One superneutralizing machine in its seven-dimensional maneuver. No wonder he had been unable to follow the inter-twinings of those monsters with each other, the retreats, the advances. Mathematicians of the twentieth century could only solve easily problems with four equations. Here was a problem with seven; and the general staff of the Glorious could never be anything but a step behind in their solution—and that step cost them forty feet a day—

His turn! He crept into the casing of the torpedo cycle; and it was smaller even than he had thought. The machine fitted him almost like a glove. Effortlessly, it glided forward, too smoothly, too willingly, into that dazzle of searchlights, into that maelstrom of machines.

One contact, he thought, one contact with an enemy meant death; and his plan of breaking through was as vague as his understanding of how a seven-dimensional maneuver actually worked.

Amazed wonder came that he was even letting himself hope.

Norma began to notice the difference, a strange, vibrant, flamelike quality within herself, a rich, warm aliveness, like an electric wire quiescent with latent force tremendous—It was utterly different, alien, as new as life returning to a dead body. Only it was added life to the life that had already existed within her.

Physically, she was still crouching there tautly,

her legs twisted under her, vision still blinded; and the hard pain of the metal beneath her was an unchanged pressure against the bone and muscle of her knees. But—

Along every nerve that wonderful sense of well-being, of strange, abnormal power quivered and grew—and yielded abruptly to the violence of the thought that flashed into her mind:

*Where was she? What had happened? What—*

The thought snapped in the middle because, amazingly, an alienness—intruded into it, another thought, not out of her own mind, not even directed at her, not—human!

“—Tentacle 2731 reporting to the Observer. A warning light has flashed on the . . . (meaningless) . . . xxxxx time machine. Action!”

The answer came instantly, coldly:

“An intruder—on top of the primary time machine. Warning from, and to, Dr. Lell’s section. Tentacle 2731, go at once—destroy intruder. Action!”

There were stunning immensities in those hard wisps of message and answering message, that echoed back along the dim corridors of her mind. The stupefying fact that she had effortlessly intercepted thought waves momentarily blotted out the immediacy of the greater fact that every chilling word of that death threat was meant for her. But then—

Before that colossal menace, even the knowledge of where she was came with a quiet unobtrusiveness, like a minor harmony in a clash of major discord. Her present location was only too obvious. Twisting the key the way she had, had sent her hurtling through time to the age of the Glorious, to the primary-time machine, where fantastic things called tentacles and observers guarded—

If only she could see! She *must* see, or she was lost before she could begin to hope.

Frantically, she strained against the blackness that lay so tight against her eyes and—

She could see!

It was as simple as that. One instant, blindness! The next, the urge to see. And then, sight, complete, without preliminary blur, like opening her eyes after a quiet sleep.

The simplicity part of it was crowded out of her brain by a whirling confusion of impression. There were two swift thoughts that clung—the brief wonder at the way sight had come back to her, merely from the wish that it would—and a flashing memory of the face that had floated at her out of the blackness of time. *With this great moment you enter upon your power and your purpose—*

The picture, all connecting thoughts, fled. She saw that she was in a room, a vast, doomed room, and that she was on top of a gigantic machine.



There were transparent walls! and beyond—

Her mind and vision leaped beyond the room, through the transparent walls. There was something out there, something tremendous! A shimmering, roseate fire, like a greater dome that covered the near sky and hid the night universe beyond.

The effort of staring tired her. Her gaze came down out of the sky; and, back in the room, she saw that all the transparent wall that faced her was broken into a senseless pattern of small balconies, each mounting glittering, strangely menacing machinery—weapons!

So many weapons—for what?

With a jar that shocked her brain, the thought disintegrated. She stared in blank horror at a long, thick, tube-shaped metal thing that floated up from below the rim of the time machine. A score of gleaming, insectlike facets seemed to glare at her.

"Tentacle 2731—destroy the intruder—"

"No!" It was her own desperate negation, product of pure devastating panic, product of newness, of a hideous, alien threat that wrecked on the instant all the bravery that had made her experiment with the key in the first place.

Her mind spun like a dizzily spinning wheel, her body shrank from the sudden, abnormal fear that this—metal—would spray her with some incredible flame weapon before she could think, before she could turn or run, or even move!

Of all her pride and accumulated courage, there remained only enough to bring a spasm of shame at the words that burst senselessly from her lips:

"No! No! You can't! Go away—go back—where you came from! Go—"

She stopped, blinked, and stared wildly. The thing was gone!

The reality of that had scarcely touched her when a crash sounded. It came from beyond and below the rim of the machine. Quite instinctively, Norma ran forward to peer down.

The hundred-foot, precipicelike slope of metal time machine that greeted her startled gaze made her draw back with a gasp, but instantly she was creeping forward again, more cautiously, but with utter fascination to see again what that first brief glimpse had revealed.

And there it was, on the distant floor, the tube-shaped thing. Even as she watched, hope building up in her, there came a weak impulse of alien thought:

"Tentacle 2731 reporting—difficulty. Female human using Insel mind rays—power 100—no further action possible by this unit—incapacitation 74 mechanical—"

Hope grew gigantic, and there was a wild burst of surmise and a desperate, wondering half belief in the miracle that was taking place. She was

doing this; her wish had brought instant return of sight, her despairing thought had sent the tentacle thing crashing to mechanical ruin. Insel mind rays, power 100! Why, it meant—it could mean—

The leaping thought sagged. One of a series of doors in the wall facing her opened, and a tall man emerged hurriedly. Quite automatically, she pressed back, tried to lie flat on the metal, out of sight; but it seemed to her those familiar, sardonic eyes were staring straight up at her. Dr. Lell's hard, tight, superbly confident thought came then like a succession of battering blows against the crumbling structure of her hope:

"This is a repetition of the x time and space manipulation. Fortunately, the transformation center this seventeenth time is a Miss Norma Matheson, who is utterly incapable, mathematically, of using the power at her disposal. She must be kept confused, kept on the run. The solution to her swift destruction is a concentration of forces of the third order, nonmechanical, according to Plan A4. Action!"

"Action immediate!" came the cold, distinctive thought of the Observer.

That was like death itself. Hope abandoned her; she lay flat on that flat metal, her mind blank, and not a quiver of strength in her body.

A minute passed; and that seemed an immense time. So much that the swift form of her thought had time to change, to harden. Fear faded like a dream; and then came returning awareness of that curious, wonderful sense of power.

She stood up, and the way her legs trembled with the effort brought the automatic memory of the way she had regained her vision. She thought tensely, consciously:

"No more physical weakness. Every muscle, every nerve, every organ of my body must function perfectly from now on and—"

A queer thrill cut the thought. It seemed to start at her toes, and sweep up, a delicious sense of warmth, like an all-over blush.

And the weakness was gone.

She stood for a moment, fascinated, utterly absorbed by this—toy! And hesitated to try it too far. Yet—

She thought: "No more mental weakness, no confusion; my brain must function with all the logic of which I am capable!"

It was strange, and not altogether satisfactory, what happened then. Her mind seemed to come to a dead stop. For an instant the blankness was complete; and then, a single, simple idea came into it:

Danger! For her there was nothing but danger and the getting out of that danger. Find the key. Go back to 1944. Get out of this world of Dr. Lell, and gain time to solve the secrets of the mighty

power centralized in her.

She jerked, as a lean, yard-long flame struck the metal beside her, and caromed away toward the ceiling. She watched it bounce from the ceiling, out of sight beyond the precipicelike edge of the machine. It must have struck the floor, but instantly it was in sight again, leaping toward the ceiling with undiminished ardor.

Up, down, up, down, up, it went as she watched; then abruptly it lost momentum, and collapsed like an empty flaming sack toward the floor, out of her line of vision.

A second streamer of flame soared up from where Dr. Lell had been heading when last she saw him. It struck the ceiling, and like an elongated billiard ball, darted down—and this time she was ready for it. Her brain reached out: *Stop! Whatever the energy that drives you, it is powerless against me. Stop!*

The flame missed her right hand by inches, and soared on up to the ceiling; and from below, strong and clear and satirical, came the voice, or was it the thought of Dr. Lell:

"My dear Miss Matheson, that's the first of the third-order energies, quite beyond your control. And have you noticed that your mind isn't quite so cool as you ordered it to be. The truth is that, though you have power unlimited, you can only use it when you understand the forces involved, either consciously or unconsciously. Most people have a reasonably clear picture of their bodily processes, which is why your body reacted so favorably, but your brain—its secrets are largely beyond your understanding.

"As for the key"—there was laughter in the words—"you seem to have forgotten it is geared to the time machine. The Observer's first act was to switch it back to 1944. Accordingly, I can promise you death—"

Her brain remained calm; her body steady, unaffected. No blood surged to her head; there was the barest quickening of her heartbeat; her hands clenched with the tense knowledge that she must act faster, think faster—

If only Jack Garson were here, with his science, his swift, logical brain—

Strangely, then, she could feel her mind slipping out of her control, like sand between her fingers. Her body remained untroubled, untouched, but her mind was suddenly gliding down, down, into dark depths.

Terror came abruptly, as a score of flame streamers leaped into sight toward the ceiling, bounced and—

"Jack, Jack, help me! I need you! Oh, Jack, come—" The slow seconds brought no answer; and the urgency of her need could brook no waiting. "Back home," she thought. "I've got to get back home, back to 1944, back—"

Her body twanged. There was blackness, and a horrible sensation of falling.

The blow of the fall was not hard; and that unaffected, almost indestructible body of hers took the shock in a flash of pain-absorbing power. Awareness came of a floor with a rug on it. A vague light directly in front of her lost its distortion and became—a window!

Her own apartment! Like a young tigress she scrambled to her feet; and then poised motionless with dismay as the old, familiar, subtle vibration thrilled its intimate way along her nerves. The machine! The machine in the room below was working!

Her will to safety had sent her back to her own time, but her call to Jack Garson had passed unheard, unheard; and here she was, alone with only a strange unwieldy power to help her against the gathering might of the enemy.

And that was her hope, that it was only gathering! Even Dr. Lell must have time to transport his forces. If she could get out of this building, use her power to carry her, as it had already borne her from the time and space of the future—

Carry her where? There was only one other place she could think of: To the hotel! To the hotel room from where she had launched herself with the key.

It wasn't death that came then, but a blow so hard that she was sobbing bitterly with the pain even as her mind yielded reluctantly to unconsciousness; even as she was realizing in stark dismay that she had struck the wall of her apartment and this power she possessed had been betrayed once again by her inability to handle it. And now Dr. Lell would have time to do everything necessary—

Blackness came—

There was a memory in Garson of the night, and of the rushing machine that had carried him, the wonderful little metal thing that darted and twisted far to the left, as close to the red haze of the time-energy barrier as he dared to go—and not a machine had followed him. In seconds he was through the blazing gap, out of Delpa, safe from Dr. Lell—only something had struck at him then, a crushing blow—

He came out of sleep without pain, and with no sense of urgency. Drowsily, he lay, parading before his mind the things that had happened; and the comfortable realization came that he must be safe or he wouldn't be—like this!

There were things to do, of course. He must transmit the information to the Planetarians that they must conquer Delpa more swiftly, that final victory waited nowhere but in Delpa. And then, somehow, he must persuade them to let him return to 1941, to Norma and—

For a while he lay peacefully, his eyes open,

gazing thoughtfully at a gray ceiling. From nearby, a man's voice said:

"There's no use expecting it."

Garson turned his head, his first alert movement. A row of hospitallike cots stretched there, other rows beyond. From the nearest bed, a pair of fine, bright, cheerful eyes stared at him. The man lay with his head crotched in a bunched, badly rumpled pillow. He said:

"Expecting to feel surprised, I mean. You won't. You've been conditioned into recovering on a gradual scale, no excitement, no hysteria, nothing that will upset you. The doctors, though Planetarian trained, are all men of the past; and up to a day ago, they pronounced you—"

Quite amazingly, the man paused; his brown eyes darkened in frown, then he smiled with an equally amazing grimness:

"I nearly said too much there. Actually you may be strong enough to stand any shock now, conditioning or no. But the fact is you'll learn the hard truths of your predicament soon enough, without getting yourself into a nervous state now. Here's a preliminary warning: Toughen your mind for bad news."

Strangely, he felt only the dimmest curiosity, and no sense of alarm at all. After what Dr. Lell had said directly and by implication of the Planetarians, no danger here could surpass what he had already been through. The only emotion he could sense within himself had to do with his double purpose of rescuing Norma from the recruiting station and—

He said aloud: "If I should be asleep the next time a doctor or Planetarian comes in, will you waken me? I've got something to tell them."

The odd, mirthless smile of the other made Garson frown. His voice was almost sharp, as he asked:

"What's the matter?"

The stranger shook his head half pityingly: "I've been twenty-seven days in this stage, and I've never seen a Planetarian. As for telling anyone on the Planetarian side anything, I've already told you to expect bad news. I know you have a message to deliver. I even know from Dra Derrel what it is, but don't ask me how he found out. All I can say is, you'll have to forget about delivering any message to anyone. Incidentally, my name is Mairphy—Edard Mairphy."

Garson lay quite still. For the moment he wasn't interested in names or the mystery of how they knew his message. There was a vague thrill of worry in the back of his mind. Every word this gentle-faced, gentle-voiced young man had spoken was packed with dark, tremendous implications.

He stared at Mairphy, but there was only the frank, open face, the friendly, half-grim smile, the careless wisp of bright, brown hair coming

down over one temple—nothing at all of danger.

Besides, where could any danger be coming from? From the Planetarians?

That was ridiculous. Regardless of their shortcomings, the Planetarians were the one race of this "time" that must be supported. They might have curious, even difficult habits, but the other side was evil almost beyond imagination. Between them, there was no question of choice.

His course was simple. As soon as he was allowed to get up—and he felt perfectly well now—he would set out to make contact with a Planetarian in a reasonable persistent manner. The whole affair was beginning to show unpleasant, puzzling aspects, but—

He grew aware of Mairphy's voice: "The warning is all I'll say on that subject for the time being. There's something else, though. Do you think you'll be able to get up in about an hour? I mean, do you feel all right?"

Garson nodded, puzzled: "I think so. Why?"

"We'll be passing the Moon about then, and I understand it's a sight worth—"

"What?"

Mairphy was staring at him. He said slowly: "I forgot. I was so busy not telling you about our main danger, it didn't occur to me that you were unconscious when we started."

He shrugged. "Well, we're on our way to Venus; and even if there was nothing else, the cards would be stacked against you by that fact alone. There are no Planetarians aboard this ship, only human beings out of the past and tentacles of the Observer. There's not a chance in the world of you speaking to any of them because—"

He stopped; then: "There I nearly went again, damn it! I'll let out the devilish truth yet, before you ought to hear it."

Garson scarcely heard. The shock wouldn't go away. He lay in a daze of wonder, overwhelmed by the incredible fact that he was in space. *In space!*

He felt suddenly outmaneuvered. Even the events he knew about were abruptly a million miles ahead of his plans.

At first, the very idea was incredibly shocking. Pain pulsed in his temples from the wave of blood that charged there. He sat, rigidly, awkwardly, in the bed; and, finally, in a choked voice he said:

"How long will it take to get to Venus?"

"Ten days, I believe!"

Very cautiously, Garson allowed the figures to penetrate. Hope surged through him. It wasn't so bad as his first despairing thought had pictured it. Ten days to get there, ten days to persuade someone to let a Planetarian have a glimpse of his mind, ten days to get back to Earth.

A month! He frowned. Actually, that wasn't so good. Wars had been lost, great empires col-



lapsed in less time than that. Yet, how could he deliver his message—on a spaceship. Venus-bound? Courses of initial action suggested themselves, but—

He said in a troubled tone. "If I was back in 1941, at this point I would try to see the captain of the ship. But you've made me doubt that normal procedures apply on a Planetarian space liner. Frankly, what are my chances?"

He saw that the young man was grim. "Exactly none!" Mairphy replied. "This is no joke, Garson. As I said before, Derrel knows and is interested in your message, don't ask me how or what or when. He was a political leader in his own age, and he's a marvel at mechanics, but, according to him, he knows only the normal, everyday things of his life. You'll have to get used to the idea of being in with a bunch of men from past ages, some queer ducks among them, Derrel the queerest of them all.

"But forget that! Just remember that you're on a spaceship in an age so far ahead of your own that there's not even a record of your time in the history books and—"

Abruptly, that was what got him. Garson lay back, breathlessly still, dazzled once again by his strange, tremendous environment, straining for impression. But there was no sense of movement, no abnormality at all. The world was quiet; the room seemed like an unusually large dormitory in a hospital.

After a moment of tenseness, he allowed his body to relax, and the full, rich flood of thought to flow in. In that eager tide, the danger to which Mairphy had referred was like a figment of imagination, a dim, darkling shadow in remoteness.

There was only the wonder, only Venus and—this silent, swift-plunging spaceship.

Venus! He let the word roll around in his mind, and it was like rich, intellectual food, luscious beyond reason to a mind shaped and trained as was his.

Venus— For ages the dreams of men had reached longingly into the skies, immeasurably fascinated by the mind-staggering fact of other worlds as vast as their own; continents, seas, rivers, treasure beyond estimate.

And now for him there was to be glittering reality. Before that fact, other urgencies faded. Norma must be rescued, of course; the strange message delivered; but if it was to be his destiny to remain in this world till the end of war, then he could ask nothing more of those years than this glowing sense of adventure, this shining opportunity to learn and see and know in a scientist's heaven.

He grew aware that Mairphy was speaking: "You know"—the young man's voice was thoughtful—"it's just possible that it might be a good idea if you did try to see the captain. I'll have to

speak to Derrel before any further action is taken and—"

Garson sighed wearily. He felt suddenly genuinely exhausted, mentally and physically, by the twisting course of events.

"Look," he said, "a minute ago you stated it was absolutely impossible for me to see the captain; now it seems it might be a good idea and so the impossible becomes possible."

A sound interrupted his words, a curious hissing sound that seemed to press at him. With a start he saw that men were climbing out of bed, groups that had been standing in quiet conversation were breaking up. In a minute, except for some three dozen who had not stirred from their beds, the manpower of that great room had emptied through a far door. As the door closed, Mairphy's tense voice stabbed at him:

"Quick! Help me out of bed and into my wheel chair. Damn this game leg of mine, but I've got to see Derrel. The attack must not take place until you've tried to see the captain. Quick, man!"

"Attack!" Garson began, then with an effort, caught himself. Forcing coolness through the shock that was gathering in his system, he lay back; he said in a voice that teetered on the edge of tremble:

"I'll help you up when you tell me what all this is about. Start talking! Fast!"

Mairphy sighed: "The whole thing's really very simple. They herded together a bunch of skeptics—that's us; it means simply men who know they are in another age, and aren't superstitious about it, always potential explosive, as the Planetarians well understood. But what they didn't realize was that Derrel was what he was.

"The mutiny was only partially successful. We got the control room, the engine room, but only one of the arsenals. The worst thing was that one of the tentacles escaped our trap, which means that the Observer Machine has been informed, and that battleships have already been dispatched after us.

"Unless we can gain full control fast, we'll be crushed; and the whole bunch of us will be executed out of hand."

Mairphy finished with a bleak smile: "That includes you and every person in this room, lame, sick or innocent. The Planetarians leave the details of running their world in the hands of a monster machine called the Observer; and the Observer is mercilessly logical.

"That's what I meant by bad news. All of us are committed to victory or to death—and now, quick, let me get to Derrel, and stop this attack!"

His mind felt a swollen, painful thing with the questions that quivered there: skeptics—tentacles—mutiny— Good heavens!

It was not until after Mairphy's power-driven wheel chair had vanished through the door that had swallowed the men that he realized how weary he was. He lay down on the bed, and there didn't seem to be a drop of emotion in him. He was thinking, a slow, flat, gray thought, of the part of the message that had come to him in the depersonalizing machine, the solemn admonishment: "—Take no unnecessary risks—stay alive!"

What a chance!

The Moon floated majestically against the backdrop of black space, a great globe of light that grew and grew. For a solid hour it clung to size, but at last it began to retreat into distance.

It was the gathering immensity of that distance that brought to Garson a sudden empty sense, a dark consciousness that he was again a tiny pawn in this gigantic struggle of gigantic forces.

He watched until the glowing sphere of Moon was a shadowy, pea-sized light half hidden by the dominating ball of fire that was the Earth. His immediate purpose was already a waxing shape in his mind, as he turned to stare down at Mairphy in his wheel chair; it struck him there were lines of fatigue around the other's eyes; he said:

"And now that the attack has been called off, I'd like to meet this mysterious Derrel. After which you'd better go straight to sleep."

The younger man drooped. "Help me to my bed, will you?"

From the bed, Mairphy smiled wanly. "Apparently, I'm the invalid, not you. The paralyzer certainly did you no real harm, but the energy chopper made a pretty job of my right leg. By the way, I'll introduce you to Derrel when I wake up."

His slow, deep breathing came as a distinct shock to Garson. He felt deserted, at a loss for action, and finally annoyed at the way he had come to depend on the company of another man.

For a while, he wandered around the room, half aimlessly, half in search of the extraordinary Derrel. But gradually his mind was drawn from that undetermined purpose, as the men, the incredible men, grew into his consciousness.

They swaggered, these chaps. When they stood, they leaned with casual grace, thumbs nonchalantly tucked into belts or into the armpits of strangely designed vests. Not more than half a dozen of that bold, vigorous-looking crew seemed to be the introvert, studious type.

Here were men of the past, adventurers, soldiers of fortune, who had mutinied as easily as, under slightly different circumstances, they might have decided to fight for, instead of against, their captors.

Bad psychology on the part of the Planetarians?

Impossible because they were perfectionists in the art.

The explanation, of course, was that an intelligence and ability as great as their own, or nearly as great, had entered the scene unknown to them, and easily duped the men of the past who operated the spaceship.

Derrel!

The whole thing was strangely, breathlessly exciting, a glittering facet of the full, violent aliveness of the life that had raged over the Earth through the ages; here were men come full grown out of their own times, loving life, yet by their casual, desperate attempt at mutiny proving that they were not remotely afraid of death.

One man was the responsible, the activating force and—

Three times Garson was sure that he had picked out Derrel, but each time he changed his mind before actually approaching the stranger.

It was only gradually that he grew aware of a lank man. The first coherent picture he had was of a tall, gawky man with a long face that was hollow-cheeked. The fellow was dressed casually in a gray shirt and gray trousers. Except for the cleanness of the clothes, he could have stepped out of a 1936 dust-bowl farmhouse.

The man half stood, half leaned, awkwardly against the side of one of the hospital-type beds, and he said nothing. Yet, somehow, he was the center of the group that surrounded him. The leader!

After a moment Garson saw that the other was surreptitiously studying him; and that was all he needed. Quite frankly, quite boldly, he surveyed the man. Before that searching gaze, the deceptive, farmerish appearance of the other dissolved like dark fog in a bright sun.

The hollow cheeks showed suddenly as a natural screen that distorted the almost abnormal strength of that face. The line of jaw ceased to be merely framework supporting the chin, showed instead in all its grim hardness, like the blunt edge of an anvil, not too prominently thrust forward. The nose—

At that point somebody addressed the man as Mr. Derrel; and it was as if Derrel had been waiting for the words as for a signal.

He stepped forward; he said in the calmest voice Garson had ever heard:

"Professor Garson, do you mind if I speak to you"—he motioned forcefully yet vaguely—"over there?"

Garson was amazed to find himself hesitating. For nearly an hour he had had the purpose of finding this man, but now—it was simply not in his nature to yield readily to the leadership of others. It struck him sharply that even to agree to Derrel's simple request was to place himself, somehow, subtly under the man's domination.

Their eyes met, his own hard with thought, Der-



rel's at first expressionless, then smiling. The smile touched his face and lighted it in astounding fashion. His entire countenance seemed to change; briefly, his personality was like a flame that burned away opposition.

Garson was startled to hear himself say: "Why, yes, what is it you wish?"

The answer was cool and tremendous: "You have received a warning message, but you need look no further for its source. I am Dra Derrel of the Wizard race of Lin. My people are fighting under great difficulties to save a universe threatened by a war whose weapons are based on the time energy itself."

"Just a minute!" Garson's voice was harsh in his own ears. "Are you trying to tell me you . . . your people sent that message?"

"I am!" The man's face was almost gray-steel in color. "And to explain that our position is now so dangerous that your own suggestion that you see Captain Gurradin has become the most important necessity and the best plan—"

Strangely, it was that on which his mind fastened, not the revelation, but the mind picture of himself leaving the placid security of this room, delivering himself into the ruthless clutches of men of some other, more merciless past than his own—and to tentacles—

Like a monstrous shadow overhanging every other emotion, the dark realization came that the

law of averages would not permit him to face death again without—death!

Slowly, the other thought—Derrel's revelation—began to intrude. He examined it, at first half puzzled that it continued to exist in his mind; somehow, it wasn't really adequate, and certainly far from satisfactory as an explanation of all that had happened.

—A message delivered into the black narrowness of a Glorious depersonalizing machine, hurtled across distance, through a web of Glorious defenses from—

Derrel!

Garson frowned, his dissatisfaction growing by the second. He stared at the man from slitted eyes; and saw that the other was standing in that peculiar easy-awkward posture of his, gazing at him coolly as if—the impression was a distinct one—as if waiting patiently for his considered reaction. That was oddly reassuring, but it was far, far from being enough.

Garson said:

"I can see I've got to be frank, or this thing's going to be all wrong. My angle goes like this: I've been building a picture in my mind, an impossible picture I can see now, of beings with tremendous powers. I thought of them as possibly acting from the future of this future, but, whatever their origin, I had the uttermost con-

vidence that they were superhuman, super-Glorious and—"

He stopped because the long-faced man was smiling in twisted fashion. "And now," Derrel said wryly, "the reality does not come up to your expectations. An ordinary man stands before you, and your dreams of god-power interfering in the affairs of men becomes what it always was basically: wishful hallucination!"

"And in its place—what?" Garson questioned coolly.

Derrel took up the words steadily: "In its place is a man who failed to take over a spaceship, and now faces a sordid death himself."

Garson parted his lips to speak, then closed them again, puzzled. There was nothing so far but honesty almost excessive. Still—confession was far from being satisfactory explanation.

Derrel's voice, rich with the first hint of passion the man had shown, beat at him: "Are you sure it was such a great failure? One man manipulating strangers who had no reason to fight—many of them invalids—and winning a partial success against the highly trained crew of a completely mechanized space cruiser, a crew supported by no less than four tentacles of the omniscient Observer."

Stripped as the account was, it brought a vivid, fascinating flash of what the reality of that fight must have been. Flesh-and-blood men charging forward in the face of—energy—weapons, dealing and receiving desperate wounds, overwhelming the alert and abundant staff of an armored ship, and four tentacles, whatever they were. Tentacle—a potent, ugly word, inhuman— Nevertheless— "If you're going to use logic on this," Garson said slowly, "you'll have to put up with my brand for another minute. Why did you go in for mutiny in the first place under such difficult conditions?"

Amazingly, the man's eyes flashed with contemptuous fire. When he spoke, his voice was thick with passion: "Can you reasonably ask for more than the reality, which is that our position is desperate because we took risks? We took risks because"—he paused, as if gathering himself; then his words flamed on—"because I am of the race of Wizards; and we were masters of the Earth of our time because we were bold. As was ever the way with the Wizards, I chose the difficult, the dangerous path; and I tell you that victory with all that it means is not yet beyond our grasp. I—"

In the queerest fashion, the glowing voice died. An intent expression crept into the man's eyes; he tilted his head, as if listening for a remote sound. Garson shook the odd impression out of his mind, and returned to the thought that had been gathering while the other was speaking; he said coolly:

"Unfortunately, for all that emotion, I was trained to be a scientist; and I was never taught to accept justification as a substitute for explanation. I—"

It was his turn to fall silent. With startled gaze, he watched the tall, gawky figure stride at top speed along the wall. The Wizard man halted as swiftly as he had started, but now his fingers were working with a strangely frantic speed at a section of the wall.

As Garson came up, the wall slid free; and Derrel, half lowered, half dropped it to the floor. In the hollow space revealed, wires gleamed; and a silver, shining glow point showed. Unhesitatingly, Derrel grasped at the white-hot-looking thing, and jerked. There was a faint flash of fire; and when his hand came away the glow was gone.

Derrel stared at Garson grimly: "Those seeming wires are not wires at all, but a pure energy web, an electron mold that, over a period of about an hour, can mold a weapon where nothing existed before. Tentacles can focus that type of mold anywhere; and the mold itself is indestructible, but up to a certain stage the molded thing can be destroyed."

Garson braced himself instinctively, as the other faced him squarely. Derrel said:

"You can see that, without my special ability to sense energy formations, there would have been surprise tragedy."

"Without you," Garson interjected, "there would have been no mutiny. I'm sorry, but I've got the kind of mind that worries about explanations. So—"

The man gazed at him without hostility; he said finally earnestly: "I know your doubts, but you can see yourself that I must go around examining our rather large territory for further electron-mold manifestations. Briefly, we Wizards are a race of the past who developed a science that enabled us to tap the time ways of the Glorious, though we cannot yet build a time machine. In many ways, we are the superiors of either Planetarians or Glorious. Our mathematics showed us that the time energy could not stand strains beyond a certain point; accordingly we have taken and are taking every possible action to save the Universe, the first and most important necessity being that of establishing a base of operations, preferably a spaceship."

He finished quietly: "For the rest, for the time being you must have faith. Regardless of your doubts, you must go to see the captain; we must win this ship before we are overwhelmed. I leave you now to think it over."

He whirled and strode off; and behind him he left half conviction, half confidence, but—Garson thought wryly—no facts!

What a vague, unsatisfactory basis on which to risk the only life he had!



He found himself straining for sounds, but there was no movement, nothing but a straggle of words that came at him from the other men. The ship itself, the wondrous ship, was quiet. It seemed to be suspended in this remote coign of the Universe; and it at least was not restless. It flashed on in tireless, stupendous flight, but basically it was unhurried, isolated from mechanical necessities, knowing neither doubt nor hope, nor fear nor courage.

Doubt! His brain was a dark opaque mass flecked with the moving lights of thoughts, heavy with the gathering pall of his doubt, knowing finally only one certainty:

With so much at stake, he must find out more about the so-called Wizards of Lin. It would be utterly ridiculous to make some move against the Planetarians, the hope of this war, on the glib say-so of—anyone! But what to do? Where to find out?

The urgent minutes fled. There was the black, incredible vista of space—but no answers offered there. There was lying in bed and staring at the gray ceiling; that was worse. Finally, there was the discovery of the library in a room adjoining the long dormitory; and that held such an immense promise that, for a brief hour, even the sense of urgency faded out of him.

Only gradually did awareness come that the books were a carefully selected collection. At any other time, every word of every page would have held him in thrall, but not now. For a while, with grim good humor, he examined volume after volume to verify his discovery. At last, weary with frustration, he returned to his bed—and saw that Mairphy was awake.

His mind leaped; then he hesitated. It was possible he would have to approach the subject of Derrel warily. He said finally:

"I suppose you've been through the library."

Mairphy shook his head, brown eyes slightly sardonic. "Not that one. But on the basis of the two I have seen, I'll venture to guess they're elementary scientific books, travel books about the planets, but no histories, and nowhere is there a reference to what year this is. They're not even letting us skeptics know that."

Garson cut in almost harshly: "These Planetarians are not such good angels as I thought. In an entirely different, perhaps cleverer way, this ship is organized to press us into their mold just as the Glorious used the deperson—"

He stopped, startled by the hard tenor of his thoughts. Good heavens! At this rate he'd soon work himself into an anti-Planetary fury. Deliberately, he tightened his mind. His job was not to hate, but to ask careful questions about Derrel—and stay alive!

He parted his lips, but before he could speak, Mairphy said: "Oh, the Planetarians are all right.

If we hadn't gone in for this damned mutiny, we'd have been treated all right in the long run, provided we kept our mouths shut and conformed."

Garson's mind literally wrenched itself from thought of Derrel. "Mouths shut!" he said. "What do you mean?"

Mairphy laughed mirthlessly: "We're the skeptics who, in a general way, know where we are. The great majority of recruits *don't* know anything except that it's a strange place. For psychological reasons, they've got to feel that they're in perfectly rational surroundings. Their own superstitions provide the solutions.

"A slew of ancient Greeks think they're fighting on the side of Jupiter in the battle of the gods. Religious folks from about four hundred different ignorant ages think for reasons of their own that everything is as it should be. The Lerdite Moralists from the thirtieth century believe this is the war of the Great Machine to control its dissident elements. And the Nelorian Dissenter of the year 7643 to 7699 who— What's the matter?"

Garson couldn't help it. The shock was physical rather than mental. He hadn't, somehow, thought of it when Derrel talked of the Wizards of Lin, but now— His nerves shivered from that casual, stunning array of words. He said finally, shakily:

"Don't mind me. It's those damned dates you've been handing out. I suppose it's really silly to think of time as being a past and a future. It's all there, spread out, six hundred billion earths and universes created every minute."

He drew a deep breath. Damn it, he'd stalled long enough. Any minute, Derrel would be coming back and—

He said stiffly: "What about the Wizards of Lin? I heard somebody use the phrase, and it intrigued me."

"Interesting race," Mairphy commented; and Garson sighed with relief. The man suspected no ulterior motive. He waited tensely, as Mairphy went on: "The Wizards discovered some connection between sex and the mind, which gave them superintellect including mental telepathy. Ruled the Earth for about three hundred years, just before the age of Endless Peace set in. Power politics and all that, violence, great on mechanics, built the first spaceship which, according to description, was as good as any that has ever existed since. Most of their secrets were lost. Those that weren't became the property of a special priest clique whose final destruction is a long story and—"

He paused, frowning thoughtfully, while Garson wondered bleakly how he ought to be taking all this. So far, Derrel's story was substantiated practically word for word. Mairphy's voice cut into his indecision:

"There's a pretty story about how the spaceship was invented. In their final struggle for power, a defeated leader, mad with anxiety about his beautiful wife who had been taken as a mistress by the conqueror, disappeared, returned with the ship, got his wife and his power back; and the Derrel dynasty ruled for a hundred years after that—"

"Derrel!" Garson said. "The Derrel dynasty!" And that, simply yet devastatingly, was that.

The echo of the shock yielded to time and familiarity, and died— They talked about it in low tones; and their hushed baritones formed a queer, deep-throated background to the measured beat of Garson's thoughts.

He stepped back, finally, as Mairphy eagerly called other men. With bleak detachment, he listened while Mairphy's voice recast itself over and over into the same shape, the same story, though the words and even the tone varied with each telling. Always, however, the reaction of the men was the same—joy! Joy at the certainty of victory! And what did it matter what age they went to afterward?

Garson grew abruptly aware that Mairphy was staring at him sharply. Mairphy said: "What's the matter?"

He felt the weight of other gazes on him, as he shrugged and said:

"All this offers little hope for me. History records that we won this ship. But I have still to confront the captain; and history is silent as to whether I lived or died— Frankly, I consider the message that I received in the Glorious depersonalizing machine more important than ever, and accordingly my life is of more importance than that of anyone else on this ship.

"I repeat, our only certainty is that Derrel escaped with the spaceship. Who else lived, we don't know. Derrel—"

"Yes!" said the calm voice of Derrel behind him. "Yes, Professor Garson."

Garson turned slowly. He had no fixed plan; there was the vaguest intention to undermine Derrel's position; and that had made him stress the uncertainty of any of the men escaping. But it wasn't a plan because—there was the unalterable fact that the ship had gotten away; Derrel had won.

No plan— The only factors in his situation were his own tremendous necessities and the inimical environment in which they existed.

For a long moment, he stared at the gangling body, studied the faint triumph that gleamed in the abnormally long yet distinctive face of the Wizard man. Garson said:

"You can read minds. So it's unnecessary to tell you what's going on. What are your intentions?"

Derrel smiled, the glowing, magnetic smile that

Garson had already seen. His agate eyes shone, as he surveyed the circle of men; then he began to speak in a strong, resonant voice. There was command in that voice, and a rich, powerful personality behind it, the voice of a man who had won:

"My first intention is to tell everyone here that we are going to an age that is a treasure house of spoils for bold men. Women, palaces, wealth, power for every man who follows me to the death. You know yourself what a damned, barren world we're in now. No women, never anything for us but the prospect of facing death fighting the Glorious still entrenched on Venus or Earth! And a damned bunch of moralists fighting a war to the finish over some queer idea that men ought or ought not to have birth control. Are you with me?"

It was a stirring, a ringing appeal to basic impulses; and the answer could not have been more satisfactory. A roar of voices, cheers; and finally: "What are we waiting for? Let's get going!"

The faint triumph deepened on Derrel's face as he turned back to Garson. He said softly:

"I'm sorry I lied to you, professor, but it never occurred to me that Mairphy or anybody aboard would know my history. I told you what I did because I had read in your mind some of the purposes that moved your actions. Naturally, I applied the first law of persuasion, and encouraged your hopes and desires."

Garson smiled grimly. The little speech Derrel had just given to the men was a supreme example of the encouragement of hopes and desires, obviously opportunistic, insincere and—reliable only if it served the other's future purposes.

He saw that Derrel was staring at him, and he said:

"You know what's in my mind. Perhaps you can give me some of that easy encouragement you dispense. But, remember, it's got to be based on logic. That includes convincing me that, if I go to the captain, it is to your self-interest to set me down near a Planetarian stronghold, and that furthermore—"

The words, all the air in his lungs, hissed out of his body. There was a hideous sense of pressure. He was jerked off his feet; and he had the flashing, incomprehending vision of two beds passing by beneath him. Then he was falling.

Instinctively, he put out his hand—and took the desperate blow of the crash onto a third bed. He sprawled there, stunned, dismayed, but unhurt and safe.

*Safe from what?*

He clawed himself erect, and stood swaying, watching other men pick themselves up, becoming aware for the first time of groans, cries of pain and—

A voice exploded into the room from some un-

seen source: "Control room speaking! Derrel—the damnedest thing has happened. A minute ago, we were thirty million miles from Venus. Now, the planet's just ahead, less than two million miles, plainly visible. What's happened?"

Garson saw Derrel then. The man was lying on his back on the floor, his eyes open, an intent expression on his face. The Wizard man waved aside his extended hands.

"Wait!" Derrel said sharply. "The tentacle aboard this ship has just reported to the Observer on Venus; and is receiving a reply, an explanation of what happened. I'm trying to get it."

His voice changed, became a monotone: "—the seventeenth x space and time manipulations . . . taking place somewhere in the future . . . several years from now. Your spaceship either by accident or design caught in the eddying current in the resulting time storm— Still not the faintest clue to the origin of the mighty powers being exercised. That is all . . . except that battleships are on the way from Venus to help you—"

Derrel stood up; he said quietly: "About what you were saying, Garson, there is no method by which I can prove that I will do anything for you. History records that I lived out my full span of life. Therefore, no self-interest, no danger to the Universe can affect my existence in the past. You'll have to act on the chance that the opportunity offers for us to give you assistance later, and there's no other guarantee I can give."

That at least was straightforward. Only—to the opportunist, even truth was but a means to an end, a means of lulling suspicion. There remained the hard fact that he must take the risks.

He said: "Give me five minutes to think it over. You believe, I can see, that I will go."

Derrel nodded: "Both your conscious and subconscious minds are beginning to accept the idea."

There was utterly no premonition in him of the fantastic thing that was going to happen. He thought, a gray, cold thought:

So he was going! In five minutes.

He stood finally at the wall visiplat, staring out at the burnished silver immensity of Venus. The planet, already vast, was expanding visibly, like a balloon being blown up. Only it didn't stop expanding and, unlike an overgrown balloon, it didn't explode.

The tight silence was broken by the tallest of the three handsome Ganellians. The man's words echoed, not Garson's thoughts, but the tenor, the dark mood of them:

"So much beauty proves once again that war is the most completely futile act of man. And the worst of it is that, somewhere in the future of this 'future' there are people who know who won this war; and they're doing nothing—damn them!"

His impulse was to say something, to add once

more his own few facts to that fascinating subject. But instead he held his thought hard on the reality of what he must do—in a minute!

Besides, Mairphy had described the Ganellians as emotional weaklings, who had concentrated on beauty, and with whom it was useless to discuss anything. True, he himself had given quite a few passable displays of emotionalism. Nevertheless—

The thought ended, as Mairphy said almost impatiently: "We've discussed all that before, and we're agreed that either the people of the future do not exist at all—which means the Universe was blown up in due course by the Glorious time-energy barrier—or, on the other hand, if the people of the future exist, they're simply older versions of the million-year-old bodies of the Planetarians or Glorious. If they exist, then the Universe was not destroyed, so why should they interfere in the war?"

"Finally, we're agreed that it's impossible that the people of the future, whatever their form, are responsible for the message that came through to Professor Garson. If they can get through a message at all, why pick Garson? Why not contact the Planetarians direct? Or even warn the Glorious of the danger!"

Garson said: "Darrel, what is your plan of attack?"

The reply was cool: "I'm not going to tell you that. Reason: at close range a tentacle can read an unwary mind. I want you to concentrate on the thought that your purpose is aboveboard, don't even think of an attack in connection with it. Wait—don't reply! I'm going to speak to Captain Gurradin!"

"Eh!" Garson began, and stopped.

The Wizard man's eyes were closed, his body rigid. He said, half to Garson, half to the others: "A lot of this stuff here works by mind control—" His voice changed: "Captain Gurradin!"

There was a tense silence; then a steel-hard voice literally spat into the room: "Yes!"

Derrel said: "We have an important communication to make. Professor Garson, one of the men who was unconscious when—"

"I know whom you mean!" interrupted that curt voice. "For God's sake, get on with your communication!"

"Not later than the twenty-fourth century," Mairphy whispered to Garson. "Note his reference to God. God was expunged from the dictionary in the 2300s. And is he boiling at this mutiny and what it's done to his prestige!"

It wasn't funny. For all this was going to be real to him. The thought drained; Mairphy became a vague background figure. There was only Derrel and Captain Gurradin; Derrel saying:

"Professor Garson has just become conscious; and he has the answer to the phenomena that car-

ried this spaceship thirty million miles in thirty seconds. He feels that he must see you immediately and communicate his message to the Planetarians at once."

There was a wave of chill laughter: "What fools we'd be to let any of you come here until after the battleships arrive! And that's my answer: He'll have to wait till the battleships arrive."

"His message," said Derrel, "cannot wait. He's coming down now, alone."

"He will be shot on sight."

"I can well imagine," Derrel said scathingly, "what the Planetarians would do to you if he is shot. This has nothing to do with the rest of us. He's coming because he must deliver that message. That is all."

Before Garson could speak, Mairphy said in a distinct voice: "I'm opposed to it. I admit it was my idea in the first place, but I couldn't favor it under such circumstances."

The Wizard man whirled on him. His vibrant voice was a drumming thing as he raged:

"That was a stab in the back to all of us. Here is a man trying to make up his mind on a dangerous mission, and you project a weakening thought. You have said that you come from the stormy period following the 13000 years of Endless Peace. That was after my time, and I know nothing about the age, but it is evident that the softness of the peace period still corroded your people. As a cripple, a weakling, who is not going to do any of the fighting, you will kindly refrain from further advice—to men!"

It could have been devastating, but Mairphy simply shrugged, smiled gently, unaffectedly, at Garson, and said: "I withdraw from the conversation." He finished: "Good luck, friend!"

Derrel, steely-eyed and cold-voiced, said to Garson: "I want to point out one thing. History says we conquered this ship. The only plan we have left revolves around you. Therefore you went to see the captain."

To Garson, to whom logic was the great prime mover, that thought had already come. Besides, his mind had been made up for five minutes.

The second corridor was empty, too; and that strained his tightening nerves to the breaking point. Garson paused stiffly, and wiped the thin line of perspiration from his brow.

And still there was no premonition in him of the incredible ending that was coming—for him; nothing but the deadly actuality of his penetration into the depths of a ship that seemed of endless length, and grew vaster with each step that he took.

A door yielded to his touch; and he peered into a great storeroom, piled with freight, thousands of tons, silent and lifeless as the corridors ahead—

He walked on, his mind blanker now, held steady far from the thought of Derrel's intended attack.

He thought vaguely: If Norma could keep from Dr. Lell her action of writing a letter to him, then he could keep any thought from *anything* and—

He was so intent that he didn't see the side corridor till the men burst from it—and had him before he could think of fighting. Not that he intended to fight—

"Bring him in here!" said a hard, familiar voice; and after a moment of peering into the shadows of the receding corridor, he saw a slender man in uniform standing beside—

A tentacle!

That thick, pipe-shaped thing could be nothing else— It rolled forward, as if wheels held it up, and its faceted eyes glared at him. It spoke abruptly in a clear, passionless voice:

"I can catch no thoughts, which is unusual. It presupposes schooling, preparation for mind-reading attempts. The Observer advises execution—"

The hard, young man's voice said impatiently: "To hell with the Observer. We can always execute. Bring him in here!"

A door opened; and light splashed out. The door closed behind him; and he saw that the room was no more than a small anteroom to some vaster, darkened room beyond.

But he scarcely noticed that. He was thinking with a stinging shock of fury: The logical Observer advising execution without a hearing. Why, that wasn't reasonable. Damn the stupid Observer!

His fury faded into vast surprise, as he stared at the captain. His first impression had been that the other was a young man, but at this closer view, he looked years older, immeasurably more mature. And, somehow, in his keyed-up state, that observation brought immense astonishment. Amazement ended, as his mind registered the blazing question in Captain Gurradin's eyes. Quite automatically, he launched into his story.

When he had finished, the commander turned his hard face to the tentacle: "Well?" he said.

The tentacle's voice came instantly, coldly: "The Observer recalls to your memory its earlier analysis of this entire situation: The destruction of Tentacles 1601, 2 and 3 and the neutralization of electron molds could only have been accomplished with the assistance of a mind reader. Accordingly, unknown to us, a mind reader was aboard.

"Four races in history solved the secret of the training essential to mental telepathy. Of these, only the Wizards of Lin possessed surpassing mechanical ability—"

It was the eeriness that held his whole mind—at first—the fantastic reality of this *thing* talking and reasoning like a human being. The Observer



Machine of the Glorious that he had seen was simply a vast machine, too big to grasp mentally; like some gigantic number, it was there, and that was all. But this—this long, tubular monstrosity with its human voice and—

Eeriness ended in hard, dismaying realization that a creature that could analyze Derrel's identity might actually prove that death was his own logical lot, and that all else was illusion— The dispassionate voice went on:

"Wizard men are bold, cunning and remorseless, and they take no action in an emergency that is not related to their purpose. Therefore, this man's appearance is part of a plot. Therefore destroy him and withdraw from the ship. The battleships will take all further action necessary, without further loss of life."

That was stunning. With a sudden, desperate fear, Garson saw that Captain Gurradin was hesitating. The commander said unhappily: "Damn it, I hate to admit defeat."

"Don't be tedious!" said the tentacle. "Your forces might win, but the battleships *will* win."

Decision came abruptly. "Very well," said the captain curtly, "Willant, de-energize this prisoner and—"

Garson said in a voice that he scarcely recognized, an abnormally steady voice: "What about my story?"

Strangely, there was a moment of silence.

"Your story," the tentacle said finally—and Garson's mind jumped at the realization that it was the tentacle, and not the captain who answered—"your story is rejected by the Observer as illogical. It is impossible that anything went wrong with a Glorious depersonalizing machine. The fact that you were repersonalized after the usual manner on reaching our lines is evidence of your condition, because the repersonalizing machine reported nothing unusual in your case.

"Furthermore, even if it was true, the message you received was stupid, because no known power or military knowledge could force the surrender of Delpa one minute sooner. It is impossible to neutralize a time-energy barrier at more than one point at one time without destroying the neutralizing machine. Consequently, the attack can only be made at one point; the military maneuver being used is the ultimate development of dimensional warfare in a given area of space. And so—"

The words scarcely penetrated, though all the sense strained through, somehow. His mind was like an enormous weight, dragging at one thought, one hope. He said, fighting for calmness now:

"Commander, by your manner to this tentacle and its master, I can see that you have long ago ceased to follow its conclusions literally. Why: because it's inhuman; the Observer is a great reservoir of facts that can be co-ordinated on any

subject, *but it is limited by the facts it knows.* It's a machine, and, while it may be logical to destroy me before you leave the ship, you know and I know that it is neither necessary nor just, and what is overwhelmingly more important, it can do no harm to hold me prisoner, and make arrangements for a Planetarian to examine the origin of the message that came to me."

He finished in a quiet, confident tone: "Captain, from what one of the men told me, you're from the 2000s A. D. I'll wager they still had horse races in your day. I'll wager furthermore that no machine could ever understand a man getting a hunch and betting his bottom dollar on a dark horse. You've already been illogical in not shooting me at sight, as you threatened on the communicator; in not leaving the ship as the Observer advised; in letting me talk on here even as the attack on your enemies is beginning—for there is an attack of some kind, and it's got the best brain on this ship behind it. But that's unimportant because you're going to abandon ship.

"What is important is this: You must carry your illogic to its logical conclusion. Retrieve your prestige, depend for once in this barren life here on luck and luck alone—"

The hard eyes did not weaken by a single gleam, but the hard voice spoke words that sounded like purest music:

"Willant, take this prisoner into the lifeboat and—"

It was at that moment it happened. With victory in his hands, the knowledge that more than two years remained before the time-energy barrier would be threatening the Universe, the whole, rich, tremendous joy that he had won—everything. All of that, and unutterable relief, and more, was in his brain when—

A voice came into his mind, strong and clear and as irresistible as living fire, a woman's voice—Norma's!

"Jack! Jack! Help me! I need you! Oh, Jack come—"

The Universe spun. Abruptly, there was no ship; and he was pitching into a gulf of blackness. Inconceivable distance fell behind him and—just like that—the fall ended.

There was no ship, no earth, no light—

Time must have passed; for slow thought was in him; and the night remained.

No, not night. He could realize that now, for there was time to realize. It was not night; it was—emptiness. Nothingness!

Briefly, the scientist part of his brain grasped at the idea; the possibility of exploring, of examining this non-space. But there was nothing to examine, nothing in him to examine *with*, no senses that could record or comprehend—nothingness!



Dismay came, a black tidal wave that surged in wild confusion through his being; his brain shrank from the sheer, terrible strain of impression. But, somehow, time passed; the flood of despair streamed out of him. There remained *nothingness!*

Change came abruptly. One instant there was that complete isolation; the next—

A man's voice said matter-of-factly: "This one is a problem. How the devil did he get into the configuration of the upper arc? You'd think he fell in."

"No report of any planes passing over Delpa!" said a second voice. "Better ask the Observer if there's any way of getting him out."

Figuratively, gravely, his mind nodded in agreement to that. He'd have to get out, of course, and—

His brain paused. *Out of where? Nothingness?*

For a long, tense moment, his thought poised over that tremendous question, striving to penetrate the obscure depths of it, that seemed to waver just beyond the reach of his reason. There had been familiar words spoken—

Delpa! An ugly thrill chased through his mind. He wasn't in Delpa, or—he felt abruptly, horribly, sick—or was he?

The sickness faded into a hopeless weariness, almost a chaotic dissolution: what did it matter where he was? Once more, he was a complete

prisoner of a powerful, dominating environment, prey to forces beyond his lightest control, unable to help Norma, unable to help himself and—

Norma! He frowned mentally, empty of any emotion, unresponsive even to the thought that what had happened implied some enormous and deadly danger—for Norma! There was only the curious, almost incredible way that she had called him; and nightmarishly he had fallen—toward Delpa! Fallen into an insane region called the configuration of the upper arc—

With a start, he realized that the Observer's voice had been speaking for some seconds:

"—it can be finally stated that no plane, no machine of any kind, has flown over Delpa since the seventeenth time and space manipulation four weeks ago. Therefore the man you have discovered in the upper arc is an enigma, whose identity must be solved without delay. Call your commander."

He waited, for there was nothing to think about—at least not at first. Memory came finally that the spaceship had been pulled a million miles a second by the mysterious seventeenth manipulation of time and space; only Derrel had distinctly described it as a repercussion from several years in the future. Now, the Observer talked as if it had happened four weeks ago. Funny!

"Nothing funny about it!" said a fourth voice, a voice so finely pitched, so directed into the stream of his thought that he wondered briefly, blankly,

whether he had thought the words, or spoken them himself; then:

"Professor Garson, you are identified. The voice you are hearing is that of a Planetarian who can read your mind."

*A Planetarian!* Wave on wave of relief made a chaos of his brain. With a dreadful effort, he tried to speak, but there was not even a sense of tongue, or lips, or body, nothing but his mind there in that—emptiness; his mind revolving swiftly, ever more swiftly around the host of things he simply had to know. It was the voice, the cool, sane voice, and the stupendous things it was saying, that gradually quieted the turmoil that racked him:

"The answer to what worries you most is that Miss Matheson was the center of the seventeenth space and time manipulation, the first time a human being has been used.

"The manipulation consisted of withdrawing one unit of the entire Solar System from the main stream without affecting the continuity of the main system; one out of the ten billion a second was swung clear in such a fashion that the time energy with its senseless, limitless power began to recreate it, carrying on two with the same superlative ease as formerly with only one.

"Actually, there are now eighteen solar systems existing roughly parallel to each other—seventeen manipulated creations and the original. My body, however, exists in only two of these because none of the previous sixteen manipulations occurred in my lifetime. Naturally, these two bodies of mine exist in separate worlds and will never again have contact with each other.

"Because she was the center of activity, Norma Matheson has her being in the main solar system only. The reason your physical elements responded to her call is that she now possesses the Insel mind power. Her call merely drew you toward her and not to her, because she lacks both the intelligence and the knowledge necessary to a competent employment of her power. As she did not protect you from intermediate dangers, you fell straight into the local time energy barrier surrounding the city of Delpa, which promptly precipitated you into the time emptiness where you now exist.

"Because of the angle of your fall, it will require an indefinite period for the machines to solve the equation that will release you. Until then, have patience!"

"Wait!" Garson thought urgently. "The great time-energy barrier! It should be completed about now!"

"In two weeks at most," came the cool reply. "We received your story, all right, and transmitted the startling extent of the danger to the Glorious. In their pride and awful determination, they see

it merely as a threat to make us surrender—or else! To us, however, the rigidly controlled world they envision means another form of death—a worse form. No blackmail will make us yield, and we have the knowledge that people of the future sent the warning. Therefore—we won!"

There was no time to think that over carefully. Garson projected his next question hurriedly: "Suppose they're not of the future, not of this seventeenth, or is it eighteenth, solar system? What will happen to me if this solar system explodes out of existence?"

The answer was cooler still: "Your position is as unique as that of Miss Matheson. You fell out of the past into the future; you *missed* the manipulation. Therefore you exist, not in two solar systems, but only where you are, attached in a general way to us. Miss Matheson exists only in the main system. There is no way in my knowledge that you two can ever come together again. Accustom yourself to that idea."

That was all. His next thought remained unanswered. Time passed; and his restless spirit drooped. Life grew dim within him. He lay without thought on the great, black deep.

Immense, immeasurable time passed; and he waited, but no voices came to disturb his cosmic grave. Twice, forces tugged at him. The first time he thought painfully:

The time-energy barrier of the Glorious had been completed, and the pressure, the tugging was all he felt of the resulting destruction.

If that had happened, nothing, no one would ever come to save him!

That first tugging, and the thought that went with it, faded into remoteness, succumbed to the weight of the centuries, was lost in the trackless waste of the æons that slid by. And finally, when it was completely forgotten, when every thought had been repeated uncountable times, when every plan of action, every theory, every hope and despair—everything—had been explored to the *n*th degree—the second tug of pressure came.

A probing sensation it was, as if he was being examined; and finally a flaming, devastatingly powerful thought came at him from—outside!

"I judge it an extrusion from a previous universe, a very low form of life, intelligence .007, unworthy of our attention. It must be registered for its infinitesimal influence and interference with energy flowage—and cast adrift."

Returning consciousness stirred in her body. She felt the sigh that breathed from her lips, as dim awareness came that she must leave this place. But there was not yet enough life in her nerves, no quickening of the co-ordination, the concentration, so necessary to the strange, masochistic power she had been given.

She thought drearily: If only she had gone to a window instead of projecting her weak flesh against an impenetrable wall.

She must get to the breakfast-nook window that overlooked the roof.

She stood at the window, weary with pain, vaguely startled by the swift reaction to her thought. Hope came violently, and the thought that she had been briefly crushed by the hard reality of the wall revived— "Pain— No pain can touch me—"

Behind her, footsteps and other—stranger—sounds crashed on the stairway; behind her, the outer door blinked into ravenous flame; ahead—was the dark, lonely night.

She scrambled to the sill— In her ears was the sound of the things that were swarming into her apartment, forcing her to swift will. From the edge of the roof she could see the milling beast men on the sidewalk below, and she could see the street corner a hundred yards away.

Instantly, she was at the corner, standing lightly, painlessly, on the pavement. But there were too many cars for further "power" travel, cars that would make devastatingly hard walls.

As she stood in a passion of uncertainty, one of the cars slowed to a stop; and it was the simplest thing to run forward, open the door and climb in, just as it started forward again. There was a small man crouching in the dimness behind the steering wheel. To him, she said, almost matter-of-factly:

"Those men! They're chasing me!"

A swarm of the beast men wallowed awkwardly into the revealing glow of the corner light, squat, apelike, frightening things. Her driver yelped shrilly: "Good God!" The car accelerated.

Almost instantly, the man was babbling: "Get out! Get out! I can't afford to get mixed up in a thing like this! I've got a family—wife—children—waiting for me this instant at home. Get out!"

He shoved at her with one hand, as if he would somehow push her through the closed door. And, because her brain was utterly pliant, utterly geared to flight, she felt scarcely a quiver of resistance. A neon light a block away caught her gaze, her attention, and fitted completely into her automatic yielding to this man's desire. She said:

"There's a taxi stand. Let me off there—"

By the time she climbed out, tentacles were glittering shapes in the air above the dim street behind her. She struck at them with her mind, but they only sagged back, like recoiling snakes, still under control, obviously prepared now for her power.

In the taxi, her mind reverted briefly in astounded thought: That mouse of a man! Had she actually let him control her, instead of forc-

ing the little pipsqueak of a human to her mighty will—

Will! She must use her will. No tentacle can come within—within— She'd have to be practical. How far had they retreated from her power—half a mile? No tentacle can come within half a mile of this car—

Eagerly, she stared out of the rear window, and her eyes widened as she saw they were a hundred yards away and coming closer. *What was wrong?* In brief, shrinking expectation she waited for the devastating fire of third-order energies; and when it did not come, she thought: This car, it must be made to go faster!

There were other cars ahead, and some passing, but altogether not many. There was room for terrible speeds if she had courage, didn't lose control and if the power would work.

"Through there," she directed, "and through there and around that corner—"

She heard shrill yells from the driver, but for a time the very extent of his dismay brought encouragement—that faded bleakly as the tentacles continued their glittering course behind her, sometimes close, sometimes far away, but always relentlessly on her trail, unshakably astute in frustrating every twist of her thought, every turn of the car, every hope, only—

Why didn't they attack?

There was no answer to that, as the long night of flight dragged on, minute by slow minute. Finally, pity touched her for the almost mad driver, who half sat, half swooned behind the steering wheel, held to consciousness and to sanity—she could see in his mind—only by the desperate knowledge that this car was his sole means of livelihood, and nothing else mattered besides that, not even death.

Let him go, she thought. It was sheer cruelty to include him in the fate that was gathering out of the night for her. Let him go, but not yet.

At first, she couldn't have told what the purpose was that quivered in her mind. But it was there, deep and chill and like death itself, and she kept directing the car without knowing exactly where she was going.

Conscious understanding of her unconscious will to death came finally, as she climbed to the ground and saw the glint of river through the trees of a park. She thought then, quite simply:

Here in this park, beside this river, where nearly four years before she had come starving and hopeless to commit suicide—here she would make her last stand!

She watched the tentacles floating toward her through the trees, catching little flashing glimpses of them, as the dim, electric lights of the park shimmered against their metallic bodies; and the vast wonder came, untainted by fear:



Was this real? Was it possible that these living, miasmaticlike emanations from the most dreadful nightmare conceivable were actually surrounding her, and that in all this great world of 1944 there was no one, no weapon, no combination of air, land and sea forces, nothing that could offer her even a husk of protection?

In a sudden, wild exasperation, she thrust her power at the nearest glint—and laughed a curt, futile laugh when the thing did not even quiver. So far as the tentacles were concerned, her power had been nullified. The implications were ultimate: when Dr. Lell arrived, he would bring swift death with him, unless—

She scrambled down the steep bank to the dark edge of the sullen river; and the intellectual mood that had brought her here to this park where once she had wanted death filled her being. She stood taut, striving for a return of the emotion, for the thought of it was not enough.

If only she could recapture the black, *emotional* mood of that other dark night!

A cool, damp breeze whisked her cheeks—but there was not a fraction of real desire to taste those ugly waters. She wanted, not death, nor power, nor the devastation of third-order energies, but marriage, a home with green grass and a flower garden; she wanted life, contentment, *Garson!*

It was more of a prayer than a command that rose from her lips in that second call for help, an appeal from the depths of her need to the only man who in all these long, deadly years had been in her thoughts:

"Jack, wherever you are, come to me here on Earth, come through the emptiness of time, come safely without pain, without body hurt or damage, and with mind clear. Come now!"

With a dreadful start, she jerked back. For a man stood beside her there by the dark waters!

The breeze came stronger. It brought a richer, more tangy smell of river stingingly into her nostrils. But it wasn't physical revival she needed. It was her mind again that was slow to move, her mind that had never yet reacted favorably to her power, her mind lying now like a cold weight inside her.

For the figure stood with stonelike stolidity, like a lump of dark, roughly shaped clay given a gruesome half-life; she thought in a ghastly dismay: Had she recalled from the dead into dreadful existence a body that may have been lying in its grave for generations?

The thing stirred and became a man. Garson said in a voice that sounded hesitant and huskily unnatural in his own ears:

"I've come—but my mind is only clearing now.

And speech comes hard after a quadrillion years." He shuddered with the thought of the countless ages he had spent in eternity; then: "I don't know what happened, I don't know what danger made you call me a second time or whether any exists; but, whatever the situation, I've thought it all out.

"You and I are being used by the mysterious universe manipulators because, according to their history, we *were* used. They would not have allowed us to get into such desperate straits if they could come to us physically, and yet it is obvious that everything will fail for them, for us, unless they can make some direct physical contact and show us how to use the vast power you have been endowed with.

"They must be able to come only through some outside force; and only yours exists in our lives. Therefore, call them, call them in any words, for they must need only the slightest assistance. Call them, and afterward we can talk and plan and hope."

Thought began to come to her, and questions, all the questions that had ever puzzled her: Why had Dr. Lell kept repeating that she had made no trouble, according to the Glorious historical record of her, when trouble was all she had ever given? Why had she been able to defeat the first tentacle, and yet now her power that had called the man from some remote time was futile against them? And where was Dr. Lell?

With an effort she finally roused her brain from its slough of pondering over paradox. What words she used then, she could not have repeated, for no memory of them remained a moment after they were spoken. In her mind was only a fascinated horror of expectation that grew *and grew*, as a sound came from the water near her feet.

The water stirred; it sighed as if yielding to some body that pressed its dark elements; it gurgled with a queer, obscene horror; and a body blacker than itself, and bigger than any man made a glinting, ugly rill of foam—

It was Jack Garson's fingers, strong and unflinching, grasping her, and his hard, determined voice that prevented her from uttering the panicky words of demon exorcise that quivered at the verge of her mind.

"Wait!" he said. "It's victory, not defeat. Wait!"

"Thank you, Professor Garson!" The voice that came out of the darkness held a strange, inhuman quality that kept her taut and uneasy. It went on: "For your sakes, I could approach in no other way. We of the four hundred and ninetieth century A. D. are human in name only. There is a dreadful irony in the thought that war, the destroyer of men, finally changed man into a beast-

like creature. One solace remains: We saved our minds and our souls at the expense of our bodies.

"Your analysis was right, Professor Garson, as far as it went. The reason we cannot use so much as a single time machine from our age is that our whole period will be in a state of abnormal unbalance for hundreds of thousands of years; even the tiniest misuse of energy could cause unforeseeable changes in the fabric of the time energy, which is so utterly indifferent to the fate of men. Our method could only be the indirect and partially successful one of isolating the explosion on one of eighteen solar systems, and drawing all the others together to withstand the shock. This was not so difficult as it sounds, for time yields easily to simple pressures.

"Miss Matheson, the reason the tentacles could trail you is that you were being subjected to psychological terrors. The tentacles that have been following you through the night were not real but third-order light projections of tentacles, designed to keep you occupied till Dr. Lell could bring his destroyer machines to bear. Actually, you have escaped all their designs.

"How? I have said time yields easily to proper pressures. Such a pressure existed as you stood by the river's edge trying to recall the black mood of suicide. It was easier for you who have power to slip through time to that period nearly four years ago than for you to recapture an unwanted lust for self-inflicted death."

"Good heavens!" Garson gasped. "Are you trying to tell us that this is the night of 1941, and that a few minutes from now Dr. Lell will come along and hire a desperate girl sitting on a park bench to be a front for a fake Calonian recruiting station?"

"And this time," said that inhuman voice, "the history of the Glorious will be fulfilled. She will make no trouble."

Garson had the sudden desperate sensation of being beyond his depth. He literally fought for words. "What . . . what about our bodies that existed then? I thought two bodies of the same person couldn't exist in the same time and space."

"They can't!"

"But—"

The firm, alien voice cut him off, cut off, too. Norma's sudden, startled intention to speak. "There are no paradoxes in time. I have said that, in order to resist the destruction of the isolated eighteenth solar system, the other seventeen *were brought together* into one—this one! The only one that now exists! But the others *were*, and in some form you were in them, but now you are here; and this is the real and only world.

"I leave you to think that over, for now you must act. History says that you two took out a marriage license—tomorrow. History says Norma Garson had no difficulty leading the double life of wife of Professor Garson and slave of Dr. Lell; and that, under my direction, she learned to use her power until the day came to destroy the great energy barrier of Delpha and help the Planetarians to their rightful victory."

Garson was himself again. "Rightful?" he said. "I'm not so convinced of that. They were the ones who precipitated the war by breaking the agreement for population curtailment."

"Rightful," said the voice firmly, "because they first denounced the agreement on the grounds that it would atrophy the human spirit and mind; they fought the war on a noble plane, and offered compromise until the last moment. No automatons on their side; and all the men they directly recruited from the past were plainly told they were wanted for dangerous work. Most of them were unemployed veterans of past wars."

Norma found her voice: "That second recruiting station I saw, with the Greeks and the Romans—"

"Exactly. But now you must receive your first lesson in the intricate process of mind and thought control, enough to fool Dr. Lell—"

The odd part of it was that, in spite of all the words that had been spoken, the warm glow of genuine belief in—everything—didn't come to her until she sat in the dim light on the bench, and watched the gaunt body of Dr. Lell stalking out of the shadowed path. Poor, unsuspecting superman!

THE END.

★ ★

**DUE TO THE WAR—**

*We can't guarantee Anson MacDonald will be able to write many stories.*

Don't miss his "Beyond This Horizon" in the April Astounding

★ ★

# THE WINGS OF NIGHT

By Lester del Rey

● It's hard for some types of men to understand that, just because another intelligent being doesn't think the way men do, it doesn't mean it doesn't think—

Illustrated by Orban

"Damn all Martians!" Fats Welch's thin mouth bit out the words with all the malice of an offended member of a superior race. "Here we are, loaded down with as sweet a high-rate cargo of iridium as ever came out of the asteroids, just barely over the Moon, and that injector starts mistiming again. If I ever see that bulbous Marshy—"

"Yeah." Slim Lane groped back with his right hand for the flexible-shaft wrench, found it, and began wriggling and grunting forward into the mess of machinery again. "Yeah. I know. You'll make mince meat out of him. Did you ever figure that maybe you were making your own trouble? That maybe Martians are people after all? Lyro Bmachiis told you it would take two days to make the overhaul of the injector control hookup, so you knocked him across the field, called his ancestors dirty dogs, and gave him just eight hours to finish repairs. Now you expect his rush job to be a labor of love for you— Oh, skip it, Fats, and give me the screwdriver."

What was the use? He'd been over it all with Fats a dozen times before, and it never got him anywhere. Fats was a good rocket man, but he couldn't stretch his imagination far enough to forget the hogwash the Reconstruction Empire was dishing out about the Destiny of Man and the Divine Plan whereby humans were created to exploit all other races. Not that it would do Fats much good if he did. Slim knew the value of idealism—none better.

He'd come out of college with a bad dose of it and an inherited fortune big enough for three men, filled with the old crusading spirit. He'd written and published books, made speeches, interviewed administrators, lobbied, joined and organized societies, and been called things that weren't complimentary. Now he was pushing freight from Mars to Earth for a living, quarter owner of a space-worn freighter. And Fats, who'd come up from a tube cleaner without the help of ideals, owned the other three quarters.

Fats watched him climb out of the hold. "Well?"

"Nothing. I can't fix it—don't know enough about electronics. There's something wrong with the relays that control the time interval, but the indicators don't show where, and I'd hate to experiment out here."

"Make it to Earth—maybe?"

Slim shook his head. "I doubt it, Fats. Better set us down on Luna somewhere, if you can handle her that far. Then maybe we can find out what's wrong before we run out of air."

Fats had figured as much and was already braking the ship down, working against the spasmodic flutter of the blasts, and swearing at the effects of even the Moon's weak gravity. But the screens showed that he was making progress toward the spot he'd chosen—a small flat plain with an area in the center that seemed unusually clear of debris and pockmarks.

"Wish they'd at least put up an emergency station out here," he muttered.

"They had one once," Slim said. "But nobody ever goes to Luna, and there's no reason for passenger ships to land there; takes less fuel for them to coast down on their fins through Earth's atmosphere than to jet down here. Freighters like us don't count, anyway. Funny how regular and flat that place is; we can't be over a mile up, and I don't see even a meteor scar."

"Luck's with us, then. I'd hate to hit a baby crater and rip off a tube or poke a hole in the shell." Fats glanced at the radio altimeter and fall indicator. "We're gonna hit plenty hard. If— Hey, what the deuce?"

Slim's eyes flicked to the screen just in time to see the flat plain split into two halves and slide smoothly out from under them as they seemed about to touch it; then they were dropping slowly into a crater of some sort, seemingly bottomless and widening out rapidly; the roar of the tubes picked up suddenly. Above them, the overscreens



showed a pair of translucent slides closing together again. His eyes stared at the height indicator, neither believing nor doubting.

"Hundred and sixty miles down, and trapped in! Tube sounds show air in some amount, at least, even up here. This crazy trap can't be here; there's no reason for it."

"Right now, who cares? We can't go through that slide up there again, so we go down and find out, I guess. Damn, no telling what kind of landing field we'll find when we reach bottom." Fats' lack of excess imagination came in handy in cases

like this. He went about the business of jockeying down the enormous crater as if he were docking at York port, too busy with the uncertain blast to worry about what he might find at the bottom. Slim gazed at him in wonder, then fell back to staring at the screens for some indication of the reason behind this obviously artificial trap.

Lhin scratched idly through the pile of dirt and rotten shale, pried out a thin scrap of reddened stone his eyes had missed the first time, and rose slowly to his feet. The Great Ones had been



good to him, sending a rockslide just when the old beds were wearing thin and poor from repeated digging. His sensitive nostrils told him there was magnesium, ferrous matter, and sulphur in abundance, all more than welcome. Of course, he'd hoped there might be copper, even as little as the end of his finger, but of that there seemed no sign. And without copper—

He shrugged the thought aside as he had done a thousand times before, and picked up his crude basket, now filled half with broken rock and half with the lichenlike growth that filled this end of the crater. One of his hands ground a bit of rottenstone together with shreds of lichen and he popped the mixture into his mouth. Grace to the Great Ones who had sent the slide; the pleasant flavor of magnesium tickled his tongue, and the lichens were full-flavored from the new richness of the soil around them. Now, with a trace of copper, there would have been nothing left to wish for.

With a rueful twitch of his supple tail, Lhin grunted and turned back toward his cave, casting a cursory glance up at the roof of the cavern. Up there, long miles away, a bright glare lanced down, diffusing out as it pierced through the layers of air, showing that the long lunar day was nearing noon, when the sun would lance down directly through the small guarding gate. It was too high to see, but he knew of the covered opening where the sloping walls of the huge valley ended and the roof began. Through all the millennia of his race's slow defeat, that great roof had stood, unsupported except for the walls that stretched out around in a circle of perhaps fifty miles diameter, strong and more lasting than even the crater itself; the one abiding monument to the greatness that had been his people's.

He knew without having to think of it that the roof was artificial, built when the last thin air was deserting the Moon, and the race had sought a final refuge here in the deepest crater, where oxygen could be trapped and kept from leaking away. In a vague way, he could sense the ages that had passed since then and wonder at the permanence of the domed roof, proof against all time.

Once, as the whole space about him testified, his had been a mighty race. But time had worked on them, aging the race as it had individuals, removing the vigor of their youth and sending in the slow creepers of hopelessness. What good was existence here, cooped up in one small colony, away from their world? Their numbers had diminished and some of their skill had gone from them. Their machines had crumbled and vanished, unreplaced, and they had fallen back to the primitive, digging out the rocks of the crater walls and the lichens they had cultured to draw energy from the heat and radioactive phosphorescence of the valley instead of sunlight. Fewer young were

planted each year, and of the few, a smaller percentage proved fertile, so that their original million fell to thousands, then to hundreds, and finally to a few grubbing individuals.

Only then had they awakened to the danger of extinction, to find it too late. There had been three elders when Lhin was grown, his seed being the only fertile one. Now the elders were gone long years since, and Lhin had the entire length and breadth of the crater to himself. And life was a long series of sleeps and food forages, relieved only by the same thoughts that had been in his mind while his dead world turned to the light and away more than a thousand times. Monotony had slowly killed off his race, but now that its work was nearly done, it had ended. Lhin was content with his type of life; he was habituated, and immune to boredom.

His feet had been moving slowly along with the turning of his thoughts, and he was out of the valley proper, near the door of the shelter carved into the rocky walls which he had chosen from the many as his home. He munched another mouthful of rock and lichen and let the diffused sunlight shine on him for a few minutes more, then turned into the cave. He needed no light, since the rock walls about had all been rendered radioactive in the dim youth of his race, and his eyes were adapted to wide ranges of light conditions. He passed quickly through the outer room, containing his woven lichen bed and few simple furnishings, and back into the combination nursery and workshop, an illogical but ever-present hope drawing him back to the far corner.

But, as always, it was reasonable. The box of rich earth, pulped to a fine loam and watered carefully, was barren of life. There was not even the beginnings of a small red shoot to awaken him to hope for the future. His seed was infertile, and the time when all life would be extinct was growing near. Bitterly he turned his back on the nursery bed.

So little lacking, yet so much! A few hundred molecules of copper salt to eat, and the seeds he grew would be fertile; or those same copper molecules added to the water would render the present seeds capable of growing into vigorous manhood—or womanhood; Lhin's people carried both male and female elements within each member, and could grow the seeds that became their children either alone or with another. So long as one member of the race lived, as many as a hundred young a year could be reared in the carefully tended incubating soil—if the vital hormone containing copper could be made.

But that, it seemed, was not to be. Lhin went over his laboriously constructed apparatus of hand-cut rock bowls and slender rods bound together into tubes, and his hearts were heavy within

him. The slow fire of dried lichen and gummy tar burned still, and slow, drop by drop, liquid oozed from the last tube into a bowl. But even in that there was no slightest odor of copper salts. Well, he had tried that and failed. The accumulation of years of refining had gone into the water that kept the nurse soil damp, and in it there had been too little of the needed mineral for life. Almost dispassionately he threw the permanent metal rolls of his race's science back into their cylinders and began disassembling the chemical part of his workshop.

That meant the other solution, harder, and filled with risks, but necessary now. Somewhere up near the roof, the records indicated, there was copper in small amounts, but well past the breathable concentration of air. That meant a helmet and tanks for compressed air, along with hooks and grapples to bridge the eroded sections of the old trail and steps leading up, instruments to detect the copper, and a pump to fill the tanks. Then he must carry many tanks forward, cache them, and go up to make another cache, step by step, until his supply line would reach the top and—perhaps—he could find copper for a new beginning.

He deliberately avoided thinking of the time required and the chances of failure. His foot came down on the little bellows and blue flames licked up from his crude forge as he drew out the hunks of refined metal and began heating them to malleability. Even the shaping of it by hand to the patterns of the ancient records was almost impossible, and yet, somehow, he must accomplish it correctly. His race must not die!

He was still working doggedly hours later when a high-pitched note shot through the cave. A meteor, coming into the fields around the sealing slides of the roof, and a large one! In all Lhin's life there had been none big enough to activate the warning screens, and he had doubted that the mechanism, though meant to be ageless and draw Sun power until the Sun died, was still functioning. As he stood staring at the door senselessly, the whistling note came again.

Now, unless he pressed his hand over the induction grid, the automatic forces would come into play, twisting the meteor aside and beyond the roof. But he gave no thought to that as he dashed forward and slapped his fingers against the grilled panel. It was for that he had chosen this rock house, once the quarters of the Watchers who let the few scouting rockets of dim past ages in and out. A small glow from the grid indicated the meteor was through, and he dropped his hand, letting the slides close again.

Then he waited impatiently for it strike, moving out to the entrance. Perhaps the Great Ones were kind and were answering his prayers at last. Since he could find no copper here, they were

sending a token from outer space to him, and who knew what fabulous amounts it might contain—perhaps even as much as he could hold in one hand! But why hadn't it struck? He scanned the roof anxiously, numb with a fear that he had been too late and the forces had thrown it aside.

No, there was a flare above—but surely not such as a meteor that size should make as it sliced down through the resisting air! A sharp stinging whine hit his ears finally, flickering off and on; and that was not the sound a meteor would logically make. He stared harder, wondering, and saw that it was settling downward slowly, not in a sudden rush, and that the flare struck down instead of fading out behind. That meant—could only mean—intelligent control! A rocket!

Lhin's mind spun under the shock, and crazy ideas of his ancestors' return, of another unknown refuge, of the Great Ones' personal visit slid into his thoughts. Basically, though, he was severely logical, and one by one he rejected them. This machine could not come from the barren moon, and that left only the fabled planet lying under the bottom of his world, or those that wandered around the Sun in other orbits. Intelligence there?

His mind slid over the records he had read, made when his ancestors had crossed space to those worlds, long before the refuge was built. They had been unable to colonize, due to the oppressive pull of gravity, but they had observed in detail. On the second planet were only squamous things that slid through the water and curious fronds on the little dry land; on his own primary, gigantic beasts covered the globe, along with growth rooted to the ground. No intelligence on those worlds. The fourth, though, was peopled by more familiar life, and like his own evolutionary forerunners, there was no division into animal and vegetable, but both were present in all. Ball-shaped blobs of life had already formed into packs, guided by instinct, with no means of communication. Yet, of the other worlds known, that seemed the most probable as a source of intelligence. If, by some miracle, they came from the third, he abandoned hope; the blood lust of that world was too plainly written in the records, where living mountainlike beasts tore at others through all the rolls of etched pictures. Half filled with dread, half with anticipation, he heard the ship land somewhere near, and started toward it, his tail curved tightly behind him.

He knew, as he caught sight of the two creatures outside the opened lock of the vessel, that his guess had been wrong. The creatures were bifurcate, like himself, though massive and much larger, and that meant the third world. He hesitated, watching carefully as they stared about, apparently keenly enjoying the air around them.

Then one spoke to the other, and his mind shook under a new shock.

The articulation and intonation were intelligent, but the sounds were a meaningless babble. Speech—that! It must be, though the words held no meaning. Wait—in the old records. Silha the Freethinker had touched on some such thought; he had written of remote days when the Lunarites had had no speech and postulated that they had invented the sounds and given them arbitrary meaning, and that only by slow ages of use had they become instinctive in the new-grown infants—had even dared to question that the Great Ones had ordered speech and sound meanings as the inevitable complement of intelligence. And now, it seemed, he was right. Lhin groped up through the fog of his discovery and tightened his thoughts into a beam.

Again, shock struck at him. Their minds were hard to reach, and once he did find the key and grope forward into their thoughts, it was apparent that they could not read his! Yet they were intelligent. But the one on whom his thoughts centered noticed him finally, and grabbed at the other. The words were still harsh and senseless, but the general meaning reached the Moon man. "Fats, what's that?"

The other turned and stared at Lhin's approach. "Dunno. Looks like a scrawny three-foot monkey. Reckon it's harmless?"

"Probably, maybe even intelligent. It's a cinch no band of political refugees built this place—nonhuman construction. Hi there!" The one who thought of himself as Slim—massive though he appeared—turned to the approaching Lunarite. "What and who are you?"

"Lhin," he answered, noting surprised pleasure in Slim's mind. "Lhin—me Lhin."

Fats grunted. "Guess you're right, Slim. Seems to savvy you. Wonder who came here and taught him English."

Lhin fumbled clumsily, trying to pin down the individual sounds to their meanings and remember them. "No sahffy Enlish. No who came here. You—" He ran out of words and drew nearer, making motions toward Slim's head, then his own. Surprisingly, Slim got it.

"He means he knows what we're thinking, I guess. Telepathy."

"Yeah? Marshies claim they can do it among themselves, but I never saw one read a human mind. They claim we don't open up right. Maybe this Ream monkey's lying to you."

"I doubt it. Take another look at the radioactivity meter in the viability tester—men wouldn't come here and go home without spreading the good word. Anyway, his name isn't Ream—Lean comes closer to the sound he made, though we'll never get it right." He half sent a thought to Lhin, who dutifully pronounced his name again.

"See? His liquid isn't . . . it's a glottal stop. And he makes the final consonant a labial, though it sounds something like our dental. We can't make sounds like that. Wonder how intelligent he is."

He turned back into the ship before Lhin could puzzle out some kind of answer, and was out a moment later with a small bundle under his arm. "Space English code book," he explained to Fats. "Same as they used to teach the Martians English a century ago."

Then to Lhin: "Here are the six hundred most useful words of our language, organized, so it'll beat waiting for you to pick them up bit by bit. You look at the diagramed pictures while I say and think the word. Now. One—w-uh-nn; two—t-ooo. Getting it?"

Fats watched them for a while, half amused, then grew tired of it. "O. K., Slim, you mollycoddle the native a while and see what you learn. I'm going over to the walls and investigate that radioactive stuff until you're ready to start repairs. Wish radios weren't so darned limited in these freighters and we could get a call through."

He wandered off, but Lhin and Slim were hardly aware of it. They were going through the difficult task of organizing a means of communication, with almost no common background, which should have been worse than impossible in terms of hours. Yet, strange as the word associations and sounds were, and odd as their organization into meaningful groups, they were still only speech, after all. And Lhin had grown into life with a highly complex speech as natural to him as breathing. He twisted his lips over the sounds and nailed the meanings down in his mind, one by one, indelibly.

Fats finally found them in Lhin's cave, tracing them by the sound of their voices, and sat down to watch, as an adult might watch a child playing with a dog. He bore Lhin no ill will, but neither could he regard the Moon man as anything but some clever animal, like the Martians or the primitives of Venus; if Slim enjoyed treating them as equals, let him have his way for the time.

Lhin was vaguely conscious of those thoughts and others more disturbing, but he was too wrapped up in the new experience of having some living mind to communicate with, after nearly a century of being alone with himself. And there were more important things. He wriggled his tail, spread his arms, and fought over the Earth sounds while Slim followed as best he could.

Finally the Earth man nodded. "I think I get it. All of them have died off except you, and you don't like the idea of coming to a dead end. Um-m-m. I wouldn't either. So now you hope these Great Ones of yours—we call 'em God—have

sent us down here to fix things up. How?"

Lhin beamed, his face contorting into a furrowed grimace of pleasure before he realized Slim misinterpreted the gesture. Slim meant well. Once he knew what was needed, perhaps he would even give the copper gladly, since the old records showed that the third world was richest of all in minerals.

"Nra is needed. Life comes from making many simple things one not-simple thing—air, drink stuff, eat stuff, all that I have, so I live. But to begin the new life, Nra is needed. It makes things begin. The seed has no life—with Nra it lives. But I had no word."

He waited impatiently while Slim digested that. "Sort of a vitamin or hormone, something like Vitamin E<sub>6</sub>, eh? Maybe we could make it, but—"

Lhin nodded. Surely the Great Ones were kind. His hearts were warm as he thought of the many seeds carefully wrapped and stored that could be made to grow with the needed copper. And now the Earth man was willing to help. A little longer and all would be well.

"No need to make," he piped happily. "Simple stuff. The seed or I can make, in us. But we need Nra to make it. See." He pulped a handful of rock from the basket lying near, chewed it carefully, and indicated that it was being changed inside him.

Fats awoke to greater attention. "Do that again, monkey!" Lhin obliged, curious to note that they apparently ate nothing other life had not prepared for them. "Darn. Rocks—just plain rocks—and he eats them. Has he got a crawl like a bird, Slim?"

"He digests them. If you've read of those half-plant, half-animal things the Martians came from, you'll know what his metabolism's like. Look, Lhin, I take it you mean an element. Sodium, calcium, chlorine? No, I guess you have all those. Iodine, maybe? Hm-m-m." He went over a couple of dozen he could imagine having anything to do with life, but copper was not among them, by accident, and a slow fear crept up into the Lunarite's thoughts. This strange barrier to communication—would it ruin all?

He groped for the answer—and relaxed. Of course, though no common word existed, the element itself was common in structure. Hurriedly he flipped the pages of the code book to a blank one and reached for the Earth man's pencil. Then, as Slim and Fats stared curiously, he began sketching in the atomic structure of copper, particle by particle, from the center out, as the master physi-cists of his race had discovered it to be.

It meant nothing to them! Slim handed the paper back, shaking his head. "Fella, if I'm right in thinking that's a picture of some atom, we've got a lot to learn back on Earth. *Wheoo!*"

Fats twisted his lips. "If that's an atom, I'm a

fried egg. Come on, Slim, it's sleepy time and you've fooled away half a day. Anyhow, I want to talk that radioactive business over with you. It's so strong it'd cook us in half an hour if we weren't wearing these portable nullifiers—yet the monkey seems to thrive on it. I got an idea."

Slim came back from his brown study and stared at his watch. "Darn it! Look, Lhin, don't give up yet; we'll talk all this over tomorrow again. But Fats is right; it's time for us to sleep. So long, fella."

Lhin nodded a temporary farewell in his own tongue and slumped back on his rough bed. Outside, he heard Fats extolling a scheme of some kind for getting out the radioactives with Lhin's help, somehow, and Slim's protesting voice. But he paid no attention. The atomic structure had been right, he knew, but they were only groping toward it in their science, and their minds knew too little of the subject to enable them to grasp his pictures.

Chemical formulas? Reactions that would eliminate others, one by one? If they were chemists, perhaps, but even Slim knew too little for that. Yet, obviously, unless there was no copper on Earth, there was an answer somewhere. Surely the Great Ones whom they called God would never answer generations of faithful prayer with a mockery! There was an answer, and while they slept, he would find it, though he had to search through every record roll for clues.

Hours later he was trudging across the plain toward the ship, hope again high. The answer, once found, was simple. All elements formed themselves into families and classes. Slim had mentioned sodium, and copper was related in the more primitive tables, such as Earth might use. More important, its atomic number was twenty-nine by theory elementary enough for any race that could build rockets.

The locks were open, and he slipped through both, the wavering half-formed thoughts of the men leading him to them unerringly. Once in their presence, he stopped, wondering about their habits. Already he had learned that what held true for his people was not necessarily the rule with them, and they might not approve of his arousing a sleeper. Finally, torn between politeness and impatience, he squatted on the metal floor, clutching the record roll, his nostrils sampling the metals around him. Copper was not there; but he hadn't expected so rare an element, though there were others here that he failed completely to recognize and guessed were among the heavy ones almost lacking on the Moon.

Fats gurgled and scrimmaged around with his arms, yawned, sat up, still half asleep. His thoughts were full of some Earth person of the female element which Lhin had noted was missing



in these two, and what he'd do "when he got rich." Lhin was highly interested in the thought pictures until he realized that it would be best not to intrude on these obviously secret things. He withdrew his mind just as the man noted him.

Fats was never at his best while waking up. He came to his feet with a bellow and grabbed for something. "Why, you sneaking little monkey! Trying to sneak up and cut our—"

Lhin squealed and avoided the blow that would have left him a shapeless blob, uncertain of how he had offended, but warned by caution to leave. Physical fear was impossible to him—too many generations had grown and died with no need of it. But it came as a numbing shock that these beings would actually kill another intelligent person. Was life so cheap on Earth?

"Hey! Hey, Fats, stop it!" Slim had awakened at the sound of the commotion, and a hasty glance showed Lhin that he was holding the other's arms. "Lay off, will you? What's going on?"

But now Fats was fully awake and calming down. He dropped the metal bar and grinned wryly. "I dunno. I guess he meant all right, but he was sitting there with that metal thing in his hands, staring at me, and I figured he meant to cut my throat or something. I'm all right now. Come on back, monkey; it's all right."

Slim let his partner go and nodded at Lhin. "Sure, come back, fella. Fats has some funny ideas about nonhumans, but he's a good-hearted sort, on the whole. Be a good doggie and he won't kick you—he might even scratch your ears."

"Nuts." Fats was grinning, good nature restored. He knew Slim meant it as a crack, but it didn't bother him; what was wrong with treating Marshies and monkeys like what they were? "Whatcha got there, monkey? More pictures that mean nothing?"

Lhin nodded in imitation of their assent gesture and held out the roll to Slim; Fats' attitude was no longer unfriendly, but he was an unknown quantity, and Slim seemed the more interested. "Pictures that mean much, I hope. Here is Nra, twenty-nine, under sodium."

"Periodic table," Slim told Fats. "At least, it looks like one. Get me the handbook, will you? Hm-m-m. Under sodium, No. 29. Sodium, potassium, copper. And it's No. 29, all right. That it, Lhin?"

Lhin's eyes were blazing with triumph. Grace to the Great Ones. "Yes, it is copper. Perhaps you have some? Even a gram, perhaps?"

"A thousand grams, if you like. According to your notions, we're lousy with the stuff. Help yourself."

Fats cut in. "Sure, monkey, we got copper, if that's the stuff you've been yelling about. What'll you pay for it?"

"Pay?"

"Sure, give in return. We help you; you help us. That's fair, isn't it?"

It hadn't occurred to Lhin, but it did seem fair. But what had he to give? And then he realized what was in the man's mind. For the copper, he was to work, digging out and purifying the radioactives that gave warmth and light and life to the crater, so painfully brought into being when the place was first constructed, transmuted to meet the special needs of the people who were to live there. And after him, his sons and their sons, mining and sweating for Earth, and being paid in barely enough copper to keep Earth supplied with laborers. Fats' mind filled again with dreams of the other Earth creature. For that, he would doom a race to life without pride or hope or accomplishment. Lhin found no understanding in it. There were so many of those creatures on Earth—why should his enslavement be necessary?

Nor was enslavement all. Eventually, doom was as certain that way as the other, once Earth was glutted with the radioactives, or when the supply here dropped below the vital point, great as the reserve was. He shuddered under the decision forced upon him.

Slim's hand fell on his shoulder. "Fats has things slightly wrong, Lhin. Haven't you, Fats?"

There was something in Slim's hand, something Lhin knew dimly was a weapon. The other man squirmed, but his grin remained.

"You're touched, Slim, soft. Maybe you believe all this junk about other races' equality, but you won't kill me for it. I'm standing pat—I'm not giving away my copper."

And suddenly Slim was grinning, too, and putting the weapon back. "O. K., don't. Lhin can have my share. There's plenty on the ship in forms we can spare, and don't forget I own a quarter of it."

Fats' thoughts contained no answer to that. He mulled it over slowly, then shrugged. Slim was right enough about it, and could do as he wanted with his share. Anyhow—"O. K. Have it your way. I'll help you pry it off wherever it is, or dig it out. How about that wire down in the engine locker?"

Lhin stood silently watching them as they opened a small locker and rummaged through it, studying the engines and controls with half his mind, the other half quivering with ecstasy at the thought of copper—not just a handful, but all he could carry, in pure form, easily turned into digestible sulphate with acids he had already prepared for his former attempt at collecting it. In a year, the crater would be populated again, teeming with life. Perhaps three or four hundred sons left, and as they multiplied, more and yet more.

A detail of the hookup he was studying brought that part of his mind uppermost, and he tugged

at Slim's trouser leg. "The . . . that . . . is not good, is it?"

"Huh? No, it isn't, fella. That's what brought us here. Why?"

"Then, without radioactives, I can pay. I will fix it." A momentary doubt struck him. "That is to pay, is it not?"

Fats heaved a coil of wonderful-smelling wire out of the locker, wiped off sweat, and nodded. "That's to pay, all right, but you let those things alone. They're bad enough, already, and maybe even Slim can't fix it."

"I can fix."

"Yeah. What school did you get your degree in electronics from? Two hundred feet in this coil, makes fifty for him. You gonna give it all to him, Slim?"

"Guess so." Slim was looking at Lhin doubtfully, only half watching as the other measured and cut the wire. "Ever touched anything like that before, Lhin? Controls for the ion feed and injectors are pretty complicated in these ships. What makes you think you can do it—unless your people had things like this and you studied the records."

Lhin fought for words as he tried to explain. His people had had nothing like that—their atomics had worked from a different angle, since uranium was almost nonexistent on the Moon, and they had used a direct application of it. But the principles were plain to him, even from what he could see outside; he could feel the way it worked in his head.

"I feel. When I first grew, I could fix that. It is the way I think, not the way I learn, though I have read all the records. For three hundred million years, my people have learned it—now I feel it."

"Three hundred million years! I knew your race was old when you told me you were born talking and reading, but—galloping dinosaurs!"

"My people saw those things on your world,

yes," Lhin assured him solemnly. "Then I shall fix?"

Slim shook his head in confusion and handed over a tool kit without another word. "Three hundred million years, Fats, and during almost all that time they were farther ahead than we are now. Figure that one out. When we were little crawling things living off dinosaur eggs, they were flitting from planet to planet—only I don't suppose they could stay very long; six times normal gravity for them. And now, just because they had to stay on a light world and their air losses made them gather here where things weren't normal, Lhin's all that's left."

"Yeah, and how does that make him a mechanic?"

"Instinct. In the same amount of time, look at the instincts the animals picked up. He has an instinct for machinery; he doesn't know all about it, probably, but he can instinctively feel how a thing should work. Add to that the collection of science records he was showing me and the amount of reading he's probably done, and there should be almost nothing he couldn't do to a machine."

There wasn't much use in arguing, Fats decided, as he watched what was happening. The monkey either fixed things or they never would leave. Lhin had taken snips and disconnected the control box completely; now he was taking that to pieces, one thing at a time. With a curious deftness, he unhooked wires, lifted out tubes, uncoupled transformers.

It seemed simple enough to him. They had converted energy from the atomic fuel, and they used certain forces to ionize matter, control the rate of ionization, feed the ions to the rocket tubes, and force them outward at high speed through helices. An elementary problem in applied electronics to govern the rate and control the ionization forces.

With small quick hands he bent wires into coils, placed other coils in relation, and coupled a tube

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to the combination. Around the whole, other coils and tubes took shape, then a long feeder connected to the pipe that carried the compound to be ionized, and bus bars to the energy intake. The injectors that handled the feeding of ions were needlessly complicated, but he let them alone, since they were workable as they were. It had taken him less than fifteen minutes.

"It will now work. But use care when you first try it. Now it makes all work, not a little as it did before."

Slim inspected it. "That all? What about this pile of stuff you didn't use?"

"There was no need. It was very poor. Now it is good." As best he could, he explained to Slim what happened when it was used now; before, it would have taken a well-trained technician to describe, even with the complicated words at his command. But what was there now was the product of a science that had gone beyond the stumbling complications of first attempts. Something was to be done, and was done, as simply as possible. Slim's only puzzle was that it hadn't been done that way in the first place—a normal reaction, once the final simplification is reached. He nodded.

"Good. Fats, this is the business. You'll get about 99.99% efficiency now, instead of the 20% maximum before. You're all right, Lhin."

Fats knew nothing of electronics, but it had sounded right as Lhin explained, and he made no comment. Instead, he headed for the control room. "O. K., we'll leave here, then. So long, monkey."

Slim gathered up the wire and handed it to Lhin, accompanying him to the air lock. On the ground as the locks closed, the Moon man looked up and managed an Earth smile. "I shall open the doors above for you to go through. And you are paid, and all is fair, not so? Then—so long, Slim. The Great Ones love you, that you have given my people back to me."

"Dios," Slim answered, and waved, just before the doors came shut. "Maybe we'll be back sometime and see how you make out."

Back at the cave, Lhin fondled the copper and waited for the sounds the rockets would make, filled with mixed emotions and uncertainties. The copper was pure ecstasy to him, but there were thoughts in Fats' mind which were not all clear. Well, he had the copper for generations to come; what happened to his people now rested on the laps of the Great Ones.

He stood outside the entrance, watching the now-steady rocket blast upward and away, carrying with it the fate of his race. If they told of the radioactives, slavery and extinction. If they remained silent, perhaps a return to former great-

ness, and passage might be resumed to other planets, long deserted even at the height of their progress; but now planets bearing life and intelligence instead of mere jungles. Perhaps, in time, and with materials bought from other worlds with ancient knowledge, even a solution that would let them restore their world to its ancient glory, as they had dreamed before hopelessness and the dark wings of a race's night had settled over them.

As he watched, the rocket spiraled directly above him, cutting the light off and on with a shadow like the beat of wings from the mists of antiquity, when winged life had filled the air of the Moon. An omen, perhaps, those sable wings that reached up and passed through the roof as he released the slides, then went skimming out, leaving all clear behind. But whether a good omen or ill, he had not decided.

He carried the copper wire back to the nursery.

And on the ship, Slim watched Fats wiggle and try to think, and there was amusement on his face. "Well, was he good? As good as any human, perhaps?"

"Yeah. All right, better. I'll admit anything you want. He's as good as I am—maybe he's better. That satisfy you?"

"No." Slim was beating the iron while it was hot. "What about those radioactives?"

Fats threw more power into the tubes, and gasped as the new force behind the rockets pushed him back into his seat. He eased up gently, staring straight ahead. Finally he shrugged and turned back to Slim.

"O. K., you win. The monkey keeps his freedom and I keep my lip buttoned. Satisfied?"

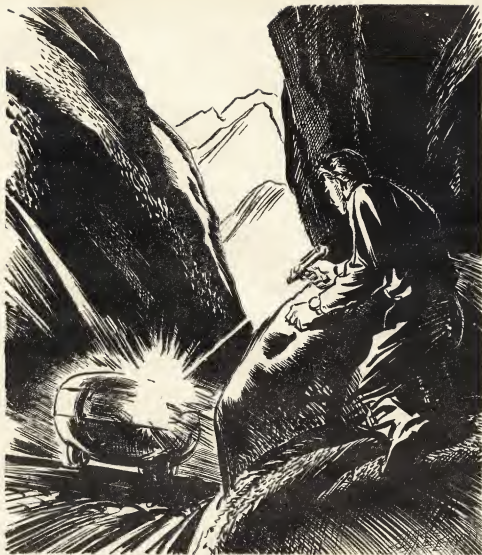
"Yeah." Slim was more than satisfied. To him, also, things seemed an omen of the future, and proof that idealism was not altogether folly. Some day the wings of dark prejudice and contempt for others might lift from all Earth's Empire, as they were lifting from Fats' mind. Perhaps not in his time, but eventually; and intelligence, not race, would rule.

"Well satisfied, Fats," he said. "And you don't need to worry about losing too much. We'll make all the money we can ever spend from the new principles of Lhin's hookup; I've thought of a dozen applications already. What do you figure on doing with your share?"

Fats grinned. "Be a damned fool. Help you start your propaganda again and go around kissing Marshies and monkeys. Wonder what our little monkey's thinking."

Lhin wasn't thinking, then; he'd solved the riddle of the factors in Fats' mind, and he knew what the decision would be. Now he was making copper sulphate, and seeing dawn come up where night had been. There's something beautiful about any dawn, and this was very lovely to him.

THE END.



# DAY AFTER TOMORROW

By Roby Wentz

● Tickle old Mother Earth a bit, so she twitches her vast old hide—and any work or plan of man that does not take that factor into account could be most thoroughly ruined.

Illustrated by Schneeman

EXCERPT FROM THE MAY DAY, 1957, ADDRESS OF KARL WILHELM BHORKOV, PRIMATE MARSHAL, TO THE ARMIES OF THE FEDERATION OF THE TOTAL RACE:

"The events of history demonstrate our fitness to rule. Our statecraft and our armed might march side by side

—the negotiated peace of 1944, the cleverness with which our new military preparation was made to appear as harmless industry and husbandry while we suckled the decadent democracies on easy profits from commerce with us, the ruthless, decisive attack upon them when our hour struck!—separate parts of the world revolutionary masterpiece—

"And as for these United States, only twenty-eight of which now impede the victorious progress of the new



order—their resistance is almost at an end. Cramped, half strangled between impassable mountains, America is smothering to death.

"I, your marshal, demand of you a little more of labor, of valor and of sacrifice until victory, the World Victory, shall be ours!"

The second time the signal vibrated in his ear plugs, Lieutenant Thomas Burke, United States army intelligence, stirred and opened his eyes—then sprang upright in the darkness as his senses told him he was not in barracks at Denver.

A second later the keen, dusty smell of the sage and the breath of night desert air brought back to him where he was, and he relaxed. Nerves, he thought, frowning, as Stanyan's voice again sounded—"Calling C3, Denver calling C3. Acknowledge, C3." He squatted down again among the crackling sagebrush and pressed the button of the wristcaster. Instantly the tiny dial glowed pale-blue, and the image of a lean face surmounting a major's oak leaves appeared. Burke raised his wrist to his lips. "C3 acknowledging," he said to the dial. "Check, please."

Something that could have been humor flickered a moment in the face on the dial. "C1 checking. Jumpy, Burke?"

Burke bit his lip. Damn Stanyan's keen ear—"All serene, sir." Glancing into the east, he saw that the sky over the distant mountains was mother-of-pearl-tinted. "Be light enough in about twenty minutes."

"Very well. I'll wait for your signal. Clearing." There was a click, and the face faded from the dial. Burke cut his own power. "Jumpy, Burke," indeed! Well, maybe he was. This was the sixth landing in occupied territory in six weeks, under cover of darkness, yes, but always in the same place, which made the risk that much greater. And always on the same silly kind of mission. If he were working for anyone but John Stanyan, he'd have asked for a transfer before this—

He pushed his way through the dusty, waist-high brush to the mound of sage under which lay his ship, took the transit out of the cockpit, and climbed on up the hill until he emerged in a tiny, new-made clearing in the chaparral. There was a bench mark there inscribed "U. S. Geodetic Survey, 1947." Burke made his usual set-up over the marker, occasionally turning on the 'caster dial for light on the spirit levels of the instrument.

As he finished, the world around him was plainly visible in the strengthening light of day, and he went behind the transit and pointed the barrel down the hillside into the still-shadowy expanses of the Mojave Desert, stretching northward toward the faraway ranges of Death Valley. A few moments of searching and he was able to pick up the speck of white stake, nearly three miles away,

lay it in the cross hairs, and note the position on the vernier scale.

He swung the telescope minutely to the left and angled it downward to locate a second stake three hundred yards downhill beside the dry wash. Carefully noting the interior angle between the two positions on the vernier, he glanced nervously at the sky and over the now well-lighted landscape, and again raised his wrist to his lips.

"C3 calling C1, C3 calling C1; acknowledge, C1." He waited. Then Stanyan's features blurred in. "C1 acknowledging. Check, please."

It was then that Burke's ears caught the almost silent thrash of propellers, and he threw himself into the brush at edge of the clearing, simultaneously cutting out the sender, just as three big ships leaped silent and ghostlike over the brow of the hill and flashed over him barely two hundred feet up.

He could hear Stanyan's calls, "Check, please, C3," and then, "Are you there, Burke? Are you there?" and he twisted his neck to watch the patrol as it swept around ninety degrees in a great circle, and headed noiselessly away toward the east along the yellow foothills.

He cut in again, interrupting Stanyan's now worried calls. "C3 checking."

"Burke! Anything wrong?"

"Three-ship Fed patrol just passed over, sir."

Stanyan's face and voice tensed. "Think you're spotted?"

"Don't know. They're gone for the present, anyway. No change on the measurements, sir. Interior angle still six degrees, thirty-seven minutes."

"So it's unchanged!" For just a moment there was high exultation in Stanyan's voice. Immediately, however, it crisped again. "You must get under way directly. That patrol may have spotted you!"

"Get under way, sir!" Burke's ejaculation was pure incredulity. The chief, he thought, must have gone duty drunk. Too many long tricks on end. "It's broad daylight, sir," he pointed out politely. Any ship taking off from this deep in occupied territory would be spotted before it passed the Sierras—

Burke was not overimaginative. He didn't have to be. He had seen a few of his pals get it—the polarized torpedo, a minute, vicious speck in the blue, streaking for the doomed ship at a speed no flier could match, pursuing and striking its prey with inexorable accuracy. Then the burst of orange-and-blue flame— He realized Stanyan was speaking, and his mind registered the words, "—going into Los Angeles."

"Repeat, sir?"

"Repeating. I said, Burke, you are not to return to Denver, you're going into Los Angeles.

You know Hollywood, of course?"

Burke gulped. "Very well indeed, sir."

"Exactly, with your picture experience. You'd know how to get to such a spot as—er—Santa Monica Boulevard and Van Ness Avenue, there?"

"Yes, sir."

His commanding officer's face in the tiny dial registered brief hesitation. "Of course," Stanyan resumed, "I want you to know that I fully realize what I'm asking of you." He paused again. "You can risk lying low where you are now, if you like, and return here tonight. On the other hand, let me say this: I know you've been wondering why all the futzing around with the transit in the Mojave Desert, but you've been a good soldier. Well, Burke, at the moment you're in the middle of what may yet be the most stupendous caper the United States army or any other ever planned or even dreamed of. That's all I can say now. You know as well as I what the Feds do to spies. Care to go ahead with it?"

Burke's heart was pounding. He felt sure Stanyan, in Denver, must be nearly deafened by it. It was with considerable astonishment that he listened to his own voice saying, "If an ex-movie director can't find his way around in Hollywood, I guess no one can!"

"O. K., Tom." Stanyan's thin lips smiled, just once. "Now, then. Your rendezvous is Santa Monica and Van Ness, at eleven p. m., Denver time, tonight. Your orders are simply to be there—the rest will be taken care of. Your password is 'News from Denver,' your counterpassword, 'Mojave.' Now, as to getting there—start as soon as possible, strike north and west along the foothills until you come to the old highway—"

The late-afternoon shadow of the big brown hill moved across the sagging roof of the roadside lunchroom, and encroached on the weed-tufted concrete of the old Los Angeles-Mojave highway.

From his place of concealment behind the splinted counter, Burke looked anxiously up the empty reach of broken pavement. For the twentieth time he shifted his cramped position among the broken dishes on the floor. He had been squatting here since noon, a good eight-mile hike from his ship. It was now past four thirty, and less than two hours of daylight remained.

From where he crouched he could touch the cracked seat of the stool on which he used to sit and drink his coffee before and after many a full day of shooting chase sequences in these same bare hills. That had been a couple of æons ago, in the horse-opera days, before "Directed by Thomas Burke" on the main title meant applause in the audience and an "A" budget on the cost sheets. Well, it was another kind of shooting, these days—

Into his reverie burst the shattering roar of an

old-fashioned exhaust. As Burke jumped to his feet, a heavy truck careened into view from behind the hill above him and came rocking down the straight stretch of eroded pavement at a speed that brought Burke out from the lunchroom and into the road, his arms waving frantically.

It was the one, all right—an old Dodge, '48 or '49 model. It shot past him, but the brakes were hissing, and he ran hard after it and caught it while it was still rolling gently downhill.

He swung up alongside the cab and said, "News from Denver."

The hunched-over figure at the wheel said, "Mojave."

"Swell!" Burke slid into the seat. "Let's go!" But the figure at the wheel, without fuss or further speech, now fell quietly forward and was still. The truck bumped gently on over the broken road, and Burke stared at the great, seared hole just under the left shoulder blade. From it his eyes went to the road behind, and so sighted the black patrol gondola with the scarlet globe on the coaming at the instant it appeared from behind the hill and shot silently down the stretch toward them.

Burke's hands went to the controls. He was struggling to wedge aside the inert body of the driver at the same time he was jamming the feed despairingly forward to the last notch and mentally figuring "About four hundred yards, and coming like crazy."

He heard the soft *plopping* of a mobile Menckel, and a clump of bushes just ahead burst into flames. "Thank God for bad paving and bad aim," he breathed, "but a farmer's truck versus a patrol gondola!"

The truck leaped. It was like having a short-range bomber take off from under you. The gasping Burke found himself whipping the vehicle this way and that as the curves rushed up to meet him.

Then he got his breath and yelled, "Hopped up!" while faith in his own luck and John Stanyan flowed back into him, and he fought the weathered road and blessed its winding course down the canyon, whereby he was screened intermittently from the fire of the pursuing gondola.

There had seemed to be only two men in it, and he was sure that for the moment he was holding his own in speed.

He also knew that a few miles ahead the canyon debouched into open country, where he could and would be pot-shotted like a sitting duck. Besides, air patrols were probably on their way already. He'd better think up a quick one, and it had better be good—

It was as he rounded the next turn that the well-remembered hilltop with its grotesque shapes of rock crowning it wheeled into view. Burke drew

breath sharply. Vasquez Rocks—the happy hunting grounds of a thousand celluloid bad men! Right now it could be the answer to a fugitive's prayer. He looked ahead for the familiar turn-off.

It was there. Burke braked the hurtling vehicle recklessly and wrenched at the wheel. For a moment it was touch and go as they slewed and swayed in deep sand at the bottom of the wash. Then the truck righted, and fled up the rutted track around the hill like a hunted deer.

Looking back to see what his pursuers would do, Burke saw the gondola shoot past the turn-off, with a protruding head in a black helmet goggling up at him. He roared with his first laughter of the day. Try to catch an old Californian in his own hills, would they? He patted the shoulder of the limp figure beside him.

"We're doin' O. K., pal!" he shouted.

The truck gained the crown of the hill, and he rammed it to the left along a diverging wheel track which led in and out among huge gray sandstone boulders scattered parklike about the hill-top. The road dipped suddenly between upright rock pilasters barely ten feet apart.

He emerged into a rock-walled natural arena. Along one side ran a broad overhang, a protecting eave of rock, under which Burke ran the vehicle and stopped it.

The driver was still breathing. Burke ascertained that much—then jumped out and ran back along the sandy track. Among the boulders he stopped and waited—

He could hear the gondola jolting up the hill, like a suspicious beast snuffling along a spoor. Its long, slender snout poked into view over the brow of the trail—Burke's hand tightened on the grip of his Menckel as he saw that the glasteel shield on the observer's side was incautiously lowered. Waiting until the range was foolproof, he aimed meticulously—and held the air release down a full second.

The succession of soft *plops* were followed by wisps of smoke curling out of the cockpit. The two in the gray uniforms and black helmets appeared to relax, but did not turn their heads—the gondola rolled soundlessly out of sight beyond a great boulder. Burke waited until he heard the crash, then ran through the rocks.

The odor of cooked flesh hung faintly on the evening air as he came up, mingling with the pungent aroma of the bruised sumacs, in which the car's nose was buried. Burke pulled the two bodies from the cockpit. Both were typical blond, blue-eyed young "Aryans."

He searched them quickly. Neither carried any papers. There was nothing but the usual identification numerals sensitized under the armpits. Obviously a couple of ordinary occupational police—the notorious Black Guards.

He tested their wrist dials, but the shots had ruined both.

There was a rushing sound from above, and his head went up in alarm. A sparrow hawk soared over, and Burke grinned wryly, but he hurried as he rolled the two bodies under the sumacs, then inspected the car. The crash had not dented the dull-black plastic with a greenish under tinge, of which all the enemy material was made. He jumped in, fiddled with the controls until he got the hang of them—started the motor, backed the gondola out of the bushes, and ran it down through the natural gateway into the arena, beside the truck.

Then, safe for the moment from patrol ships, he turned his attention to the truck driver. Breaking out his own first aid, he packed the wound with a treated gauze especially designed for Menckel burns, then took his first good look at the man. The boy, he amended, after a look at his face, couldn't be a day over eighteen. He wore dungarees, looked like any farm worker hauling food supplies for occupational forces. Burke laid a radium salt capsule between the cervical vertebrae and pressed. After an interval the lad's eyes opened, and his gaze found Burke's face.

His lips parted. "Are . . . you—"

"I'm Burke, intelligence. The guy you came for. Feel bad?"

A barely perceptible nod was the reply. His lips moved again, and Burke bent closer.

"Stewart . . . intelligence—" he heard the boy say. There was a pause, then, "How about—" His eyes completed the query.

Burke turned his head enough so that he could see the captured gondola. "Got 'em both," he told Stewart.

The other managed the ghost of a grin. "Ran into 'em . . . the hills. Knew I wasn't . . . regular driver. Tried to pump me about . . . Axelite—"

"Axelite?"

"Use . . . back roads . . . going in . . . good luck . . . Burke—"

Burke pressed the capsule hard against his neck. "What's 'Axelite'?"

The boy's eyes were blank. Burke relaxed the pressure; there was no more need of it. He lifted the body out of the cab and laid it gently on the sandy floor along the rock wall.

"Axelite—"

Whatever it was, the Feds, by Stewart's account, were interested in it. He puzzled, beside the body under the overhang, until the arena lay in deep shadow with only one rock pinnacle still tipped with red sunlight.

Suddenly Burke realized that not a single patrol ship had come over since his ambush of the

gondola. At that he jumped to his feet and scrambled up a nearby "chimney" in the rock.

The top of the cliff was also the top of the hill. Lying on his stomach, he could follow the pale ribbon of the old highway far across the valley to a cluster of buildings that had been some little town—probably Newhall.

Nothing moved in the scene except a cruising buzzard. It was empty as the Mojave. So were the clear evening skies. There was a hint of fog at the crests of the farthest hills toward the ocean.

Burke whistled softly. "No one," he said aloud, "seems to be looking for me."

It was inconceivable that the crew of the gondola could have been so grossly negligent as not to broadcast news of the escaping truck long before he killed them. Ordinarily, air observers would have been on the scene within minutes. Nor would they have given up this quickly.

"If I really wanted to flush a guy out of this country, I know what I'd do," he mused, eying the heavy, dry chaparral, "fire the brush and post cordons." It was a sound method; he had had his writers use it in the script for "Guns of the Bar-H," with Earl Austin, away back in the old Triumph Pictures days.

Maybe none of the Feds had seen "Guns of the Bar-H."

And, then, there was another angle: He remembered cases where enemy operatives had been given the run of the reservation—until their activities led counterespionage to something really important. But why, unless enemy intelligence were operating on a pure hunch, should they handle *him* that way? Even he himself didn't know the ultimate objective of his mission. Did the enemy know—or have a clue?

Burke gave it up and slid back down the chimney. There was one sure way to find out—by carrying out his orders. He would act on one hypothesis and one only—that his presence was unknown, and try to keep it so. If they wanted to play at cat and mouse, that was their affair.

To use the truck any further, however, would be too risky. That left the gondola. In it he could very probably hug the back roads—of which he knew every one between here and the coast—and escape challenge until he gained the immediate area around Hollywood.

From there on it would be tough. He had to assume the gondola was listed as missing and the object of a search. He noted the block numerals on the side panels—3082, in scarlet. The "3" could be made into an "8." He figured he might just be able to lay hands on some plain, old-time red circus paint, occupation or no occupation. It was worth a try, and he had a rendezvous to keep.

Burke made his decision. He went out to where the bodies of the patrol car's crew lay, stripped the gray tunic and the helmet from the taller one

and, mastering his revulsion, put them on. There was the large hole burned in the left shoulder, but it would have to do.

It was six forty-two on the dial in the cockpit when, with the helmet cocked rakishly over one eye, Burke drove the gondola out onto the road and headed south.

Lefty held the bulb up high and inspected the contents of the shelf. There wasn't much there—maybe another half a dozen cans of beans, one of chicken soup and another of tomato, and the lone jar of pickled pigs' feet he'd been saving for a year, on the off chance he might run across some bottled beer.

It was the last of the stuff he'd located in the buried drugstore kitchen over at Studio City. He grinned, recalling his smartness on *that* job; he'd bet anything maybe a hundred other guys would have walked right by it. But his eye had spotted the skillet handle sticking up through the rubble. The skillet itself had come in very handy when the guy came out of the ruins across the road and tried to jump him for the stuff—

His grin faded. This time it was going to take some doing. These were the lush old days just after the epidemic, when he'd even found a gallon of sulphuric to keep his battery going under the stage here. This Burbank territory had been worked and reworked by every mob from downtown. And when he tried to tell Cap Sumitomo, commanding the Guards in the Valley, that it was dangerous to let the mobs roam like that, it was no go. The cap just laughed and made a nasty crack about the Americans being free to forage for whatever food they could find, like the animals they were. To think that Sumitomo used to cut lawns over in Beverly Hills!

He switched off his light and mounted the stairs into the orchestra pit. Time to make the nightly check on the outer doors. But in the pit he stopped short. Cool night air was blowing in through the dark spaces of the theater.

The front door was open.

Lefty carefully detached a heavy leather sap from his belt and poised alertly in the darkness. The fresh air continued to puff through the auditorium, but there was complete silence. Then something moved softly at the back of the auditorium, and he stepped from the pit into the center aisle, moving noiselessly on bare feet, and advanced stealthily toward the sound.

The collision of the two bodies, the intruder's surprised oath, and the clang of his sap on a helmet shattered the silence almost simultaneously.

Lefty swore richly. He had attacked a Fed! As well be shot now for a sheep as a goat—

He tried for a knee in the solar plexus just as an air pistol smacked wetly beside him. Instantly a light flame bloomed at the front of the house





and ran up the peeling, silvery surface of the big screen.

The antagonist—a tall man—wrenched himself from Lefty's bear grip and backed away up the aisle in the lurid light, pistol poised.

Lefty's bearded jaw dropped. He stared transfixed at the man backing up the aisle. Then he raised his hands above his head in token of non-belligerency.

"Boss!" he yelled over the mounting noise of the fire. "Boss! Don't shoot! It's me—Lefty!"

The man in the gray uniform halted and lowered his weapon slightly. "Lefty?"

"Lefty Brown, boss. Your old gaffer. You remember your own juicer, boss!"

The muzzle of Burke's pistol fell.

"Lefty! Good Lord—what in the world—" He advanced down the aisle again, as the flames leaped into the heavy hangings on both sides of the proscenium.

Brown seized Burke's arm. "Explanations later, boss. This little blaze'll bring 'em on the double, an' that uniform ain't just the thing to be caught in around here, if you're American. Come on!"

He pulled Burke up the aisle into the lobby and through a double door at one side of the building. Burke felt a sloping floor under his feet, leading downward on a sharp incline. The big juicer's bare feet pounded ahead of him in the gloom, and he ran after him.

"Take it easy, boss," came the warning, seconds later, "there's a jump-off here somewhere." He groped to Brown's voice, turning on the view plate of his 'caster for light. "Just where are we?"

"This is the subway, boss." Brown's bearded features grinned in the eerie blue radiance flowing from the dial. He took Burke's wrist and directed the light downward over the edge of the platform. "Look!"

A few feet below, parallel rails gleamed dully.

"The L. A.-Burbank subway, good as new, except for a couple of bomb holes in the roof down the line. Say—this is a great pleasure, boss, to put it faintly—but what in the name of the good old days is the idea—"

"The pleasure is all mine, Lefty—" Burke leaned a moment against the tiled wall. "In fact, I could enlarge on the topic for hours. How can I get to Hollywood quick, tonight, pronto?"

"What d'ya want to go to Hollywood for, boss? It's a hell of a mess. Oh-oh, listen!"

Faintly from somewhere above came the sound of voices shouting excitedly in foreign inflections.

Brown ran up the tracks. Burke followed and found him beside a collection of spidery, three-wheeled contraptions.

"Hand cars," Brown said briefly. "Look over there."

Burke shone the light after his pointing finger and revealed the dim outlines of massive machinery. "End of the tunnel. This line never got into service, if you'll recall. That's how far they were the day it happened. Now-w-w-w—"

Together they wangled a hand car onto the rails. The faint odor of smoke was perceptible. Brown chuckled. "Good old fire! It'll keep 'em no end busy for a while."

"Good old hand car," retorted Burke. He got aboard. "Tracks clear below?"

"We'll have to portage at a couple places," Brown told him, giving the car a shove and jumping on the other end. "Here we go. Pump, now!"

They bent their bodies up and down over the bar, and wheels began to click merrily over the rails in the darkness. "Ain't science wonderful?" chuckled Brown. "This car has a swell dead motor on it. Not too fast, boss. There's things on this track here and there. The road ain't maintained its right of way any too well lately, as you might say. Lord, it's good to see you!"

Shouting above the echoing rattle of the car, Brown told how, on the fifth day of the attack, when action had moved on inland, he had finally reached his home in Santa Monica.

"There was a crater the size of a football field where my house had been. One of the new bombs, prob'ly." He paused. "I reckon Emma an' the kids never knew what hit 'em. So, then I come back out to the valley—most because I couldn't think of anywhere to come but back to the studio, I guess. Well, there wasn't no studio there any more. Everything was quiet an' sunshiny. A little later come the epidemic, and when that was finally over, those that was left had their pick o' places to live. I bet there's extra girls livin' in directors' an' producers' houses up in the hills now—an' starvin' to death. Me, I took the Criterion Theater. Hey!" The car jolted violently, almost derailing itself, then crunched to a halt.

Burke shot the light ahead, revealing the lower portions of a heap of dirt and rock. "End of the line," he announced. "This is where we get off."

"Don't you believe it," Brown told him. "This is just one of the hazards on this course—might call it the first hole."

Pulling and pushing, the two men forced the car through the small aperture between the rock pile and the wall of the tunnel.

"Lucky we got through," Brown confessed as he set the car on the track again beyond the slide, "but I figured we'd better take a chance. Down-hill, from here on. Keep that wrist watch—or whatever it is there—lighted. The Hollywood line breaks off right along in here. What d'ya want to go to Hollywood for, boss? An' where'd you get that Fed outfit with the big hole in it? You a spy?"

Burke was saved from answering as Brown yipped, "Hold 'er! Here's the branch-off. Now, let's see—"

"Where does this line go?"

"Out to Santa Monica Boulevard, boss. You can—"

"Swell! Pump like hell, Lefty!" Burke scanned his watch. He had fifteen minutes. They must be nearly under the Los Angeles River. It could be done—

"Gun 'er, boy!"

He bent to the pumping, and the hand car leaped ahead on the new course.

Director Tom Burke was coming home to Hollywood!

Fog from the sea, like a shallow, cottony-white flood, inundated the lowlands soon after sundown, pouring alike over blasted Santa Monica, over Beverly Hills where the square blocks of handsome, empty houses still stood as though closed for the season, over the shattered skyscrapers downtown. It crept in along the hills and engulfed Hollywood.

Where Van Ness Avenue dived under the great double-deck east-west freeway of Santa Monica Boulevard, it swirled among the concrete piers. A wind rattled the dead, brown palm fronds. Lefty Brown shivered, but not from cold. It was well-nigh stifling in the shadows beneath the upper deck.

"Ever feel it hot like this, boss? Ever feel a hot fog?" When Burke did not reply, he answered himself. "Damn right you didn't. What kind of weather is this?"

Burke peered into the half-lighted grayness.

"What are we doin' here, boss?"

"I don't know." Burke spoke with complete truth. It was eleven five. He stepped out of the shadows into the open. "Wait here."

"Wait, hell!" The big juicer slouched after him.

As they moved away from the freeway, a half score of dim shapes likewise detached themselves from the gloom under the elevated road, and converged soundlessly on the two. Powerful hands covered the mouths of the two Americans at the same instant that strong hands enwrapped them.

No sound had been made, but Burke found himself helpless. He could hear whispers in the dim-

ness around him. A shaded light flashed in his face and over his body. There was a muttered exclamation.

"A Fed!" ejaculated a voice, in unmistakably British accents. "No—wait!"

Fingers probed the burned hole in the gray tunic he wore.

Burke made strangled sounds against the palm of the outside hand clamped upon his mouth.

"Let him open his mouth," the British voice ordered.

The hand was removed.

Burked worked his stiff lips. "News from Denver," he said to the fog.

"And Mojave to you, old chap," the voice rejoined. "Now what about the other Johnny?"

"He's one hundred percent. Know him well. Couldn't have made it without him."

The invisible leader appeared to ponder.

"Bring him along," he said, "but blindfold him."

Then Lefty's complaint sounded on the night.

"Hey, boss, what the hell is—"

His voice was closed as though by magic, the cessation being accompanied by a sickening crack as of metal on bone.

"Damned fool!" the British voice rapped. "Come on!"

The stumpy figure of a man appeared at Burke's elbow. "Off we go, now! Sharp!" He moved ahead through the fog, and Burke, free of his captors, followed, noting that underfoot was the crackle of dried turf.

Burke was striving vainly to orient himself. They seemed to be walking through a blasted park. Only the stumps remained of scores of trees, cut off at varying heights from the ground.

He put out a hand and felt one of them as he passed it.

It was cold, damp stone.

The truth hit him in a flash. This was the Hollywood Cemetery; the stumps were tombstones. And at this point the leader threw himself flat on his face and appeared to commune with the solid earth—a sizable oblong of which thereupon quietly reared itself in Burke's face as though on hinges. He had time to recognize it as a large stone set flush with the ground, and he made out the words

GEORGE L. PENNYWAITE

Beloved Husband of—

Then hands at his elbows steered him into the black cavity under the stone. "They're steep, chum," a young voice said.

He stumbled down steps leading into the earth, wondering inconsequently what Mr. George L. Pennywaite would think of this. About thirty steps down and he ran into a blank wall.

"This way, chum." He turned to the left and

found he could walk along a narrow, airless passageway.

Then he was no longer in the passage, but in a room. He could extend his arms on either side; no walls. Brilliant lights flooded everything, and Burke closed his eyes in the glare.

"Welcome to Terramont Studios, Lieutenant Burke." The voice was deep and amused. He opened his eyes and stared. He had been around picture business too long not to know a film vault when he found himself inside one. And, of course, this one would have to be under the old Terramont lot.

It was a long, narrow room with concrete walls. A group of three men had just entered at the far end, and the speaker, a giant of a man with unruly white hair, was smiling at him.

"I am Dr. Eric Whitman, lieutenant." He waved a hand at the other two. "This is Dr. Jose Zorilla, late of the University of Lima." Zorilla, slender and handsome, bowed with a flash of white teeth. "And this," Whitman went on, "is Burt L. Storke, president of the Golden West Cinnabar Enterprises until the—er—late blitz."

Storke, a short, bushy-browed individual with a harassed look, muttered something.

"Don't forget me, doctor." A chunky, blond-mustached man appeared out of the dark tunnel mouth. "Shocking bad manners. I'm Gerald Holly, of dear old blighty, Burke."

"A quiet, efficient group of gangsters you command, Holly."

The Englishman grinned. "Shows what can be done with college kids. Some of the good doctor's erstwhile students."

"I see. Pardon me, gentlemen." Burke, wearing the regulation single plug, fixed its mate in his other ear and cut in on the 'caster, completely ignoring the others. The dial glowed blue and he spoke. "C3 calling C1, C3 calling C1. Acknowledge, C1."

Stanyan's face blurred in, then sharpened to clarity. "C1 acknowledging. Check."

"C3 checking. Submitting for inspection Dr. Eric Whitman—Dr. Jose Zorilla—Mr. Burt Storke—Mr. Gerald Holly." As he spoke each name he centered the dial before it's owner's face.

Stanyan's face did not change. "They're O. K. Get there in one piece?"

"I'm all right."

"Good. You're in command there from here on in, Burke."

"Yes, sir."

"Whitman will explain everything to you. It won't be long now, lad. Clearing." The dial shone blue and empty.

Burke turned to the silent group of men. "Well, gentlemen," he said conversationally, "I'm taking command here. Dr. Whitman, you'll please

tell me what it is I'm commanding and why. Also, can I have something to eat?"

"With pleasure, on both counts." Whitman's heavy voice was genial. "Zorilla—"

"Frijoles and coffee, señor, in one moment." The Peruvian smiled and exited.

"By the way," said Whitman, "who's the heavy party thrashing around back there in the tunnel? We expected you alone."

Burke laughed. "That's Lefty." He told how he had invaded the empty theater, knowing of old where its showcard equipment and paints were stored. "I had to have that paint."

"Dinner is served," said Zorilla from the doorway.

Whitman led Burke into an adjoining vault, on the wall of which was hung a huge map of California. "We have beans," he said, "a highly nutritious food. You eat and I'll talk."

"I don't know how much Stanyan told you. You're here because our work has reached a point where direct liaison with Denver GHQ is absolutely essential. And, since the projected operation is a major part—the very keystone, in fact—of our new grand strategy, it's proper for an officer of the United States army to be in command and responsible. Naturally, being familiar with the very special nature of this work, I shall continue to direct actual operations."

"Dr. Whitman, I certainly can't interfere with operations I know nothing about."

Whitman grinned. "I'm coming to that, lieutenant. The first thing is to make you the latest one of the few men who know that the army is now able to manufacture dinitro acetylene—and is manufacturing it."

"I'm not a chemist, doctor."

"What happened, Burke, has put an entirely new complexion on the war. Axelsson of Chicago, poor fellow, decided to try to manufacture dinitro. Up to then, you understand, less than twelve months ago, it was just a formula on a piece of paper, no successful way known of making it. Axelsson's idea was that the Feds had found a way of making dinitro, and it was one of the ingredients of the new bombs."

Whitman paused. "Axelsson succeeded in making some. And then, by one of those accidents to which we owe so many of the great discoveries, some of the stuff got in with some TNT that was being tested. My own suspicion is that he deliberately added it.

"It blew him nearly to bits, but he lived long enough to tell what had happened. They named the new explosive Axelite, of course—"

Burke uttered an exclamation.

"I beg your pardon?"

"Axelite?"

"Axelite 23—two nitros plus three nitros, and

their accompanying condiments—terrific stuff, increases the shock-wave rate of an ordinary TNT explosion about seven times, if you can imagine—"

Burke banged the table with his fist. "That's it!"

Whitman stared.

"Simply meaning I could have ridden in here with a brass band in broad daylight!" Rapidly he described the mystifying failure of the occupational guards to search for him the previous afternoon, the mystifying ease with which he had been able to reach the outskirts of the city.

"There's been a leak on your dinitro, doctor! They tried to pump poor Stewart about it. Apparently he was in the know, all right. They've got wind of your stuff, and they're just itching to find out what uses may be made of it. That's why I got the run of the reservation. They knew exactly where I was yesterday afternoon and evening—until I walked into that theater in Burbank."

Whitman rose in alarm. "You think you were followed here?"

"No, I don't. They'll think I burned to death in the theater—no doubt about it. What has Axelite 23 got to do with my playing with surveying equipment up in the desert at the crack of day?"

"Plenty. Together with one other—and vital—factor, they make up the elements of an offensive the likes of which our esteemed antagonists have never dreamed of."

"Offensive?"

"Precisely. Strategically, of course, we must take the offensive. If we sit passively behind the Rockies and the Alleghenies, we invite slow strangulation. The marshal hopes we do just that. He'd never need strike another blow—just wait for the end.

"On the other hand, the world situation is pretty well known to us. The Federation armies, vast as they are, are spread very thin over a world that hates their guts. England and Turkey, Italy, the Argentine, China are on the point of dangerous revolt. Only, they won't move alone. There's got to be a bold, effective stroke somewhere. We are about to supply that stroke."

"Get to the point."

"I'm at the point, lieutenant." He eyed Burke quizzically. "How much do you know about the San Andreas Fault?"

"The San Andre— What did you call it?"

"The San Andreas Fault."

"I never heard of it."

"A typical Californian," Whitman commented sardonically, "unaware that the greatest diastrophic fracture in the Western Hemisphere, a crack in the crust of this Earth at least six hundred miles long and God knows how deep, lies wholly within the boundaries and coastal waters



of your State. You've heard what happened to San Francisco in 1906?"

"The earthquake, you mean?"

"I do. That was the San Andreas, stretching itself. Look—" He moved to the wall map and indicated a spot on the coast well up toward Oregon. "There's Point Arena. That's where she climbs up out of the ocean. She plays tag with the coast line until right here"—he placed his finger just south of the Golden Gate—"she comes ashore for good, and hits off south in a straight line, so."

He swept his finger down the map to a spot east of Ventura in southern California. "Then she slews around to the east a little, marks the southern edge of the Mojave Desert, slices through the Cajon Pass, and gets lost out in the desert north of Palm Springs—five hundred and eighty-nine miles of continuous fracture, an incision in the western flank of North America that's never healed."

He paused and the men remained silent. "There hasn't been a major quake on it since 1906," he concluded softly.

Burke spoke. "I'm not sure I get what you're driving at," he said, "but if I do, one or both of us is crazy."

Whitman smiled. "What I'm driving at is the first known application to a specific situation of the science of isostatics—in this case, the presence of an invading army on United States soil."

"Then what you're about to tell me is that the basis of this new strategy you speak of is an art—"

"An artificial earthquake? Oh, no, Burke. Nothing quite so fantastic, I'm afraid. We don't have to create the earthquake; it's at hand—now!" His eyes flashed. "But what we *shall* do is trigger that earthquake—detonate it, if you please—as part of a prearranged scheme of action!"

"But—"

"Señor Burke, we do not play with games." Zorilla smiled at him. "We are *científicos*. We have worked a long time."

Burke shook his head. "This is a little out of the ordinary. I can see, doctor, that you're not 'playing games.'" He turned to Whitman. "When's zero?"

"Whenever Denver instructs us to take final steps. About forty-eight hours, I'd guess, however."

"And those final steps?"

"Installation of a single piece of vital apparatus at a certain spot."

"What's your technique?"

"What about some sleep?"

Burke brushed the suggestion aside. "Not until I know what's going on."

"Very well." Whitman sat down again. "Our technique's simple, Burke—we add the final straw to the camel's back and it breaks. Under normal conditions, the two sides of this six-hundred-mile crack move past one another at a pretty fast clip, geologically speaking—about thirty-nine feet every sixty years. Don't ask me why. No one knows. The Fault moves—that's all we know."

"This movement—or, rather, the *present stoppage of it*—is the kernel of all we're doing. These earth masses obey the same natural laws as other solids—a sufficiently immovable obstacle halts them. Probably that happened in 1906. A projecting mass of rock, somewhere deep in the rift, stops the normal movement. Tension builds up behind it. Presently the pressure of the mass becomes irresistible, and it scrapes past the obstruction."

He paused. "You have an earthquake. At this moment we have such a condition of potential violence at three different points on the course of the Fault. The release of any one of them will 'trip' the others."

"And what 'trips' them?"

Whitman laid his hand on the shoulder of Storke, the mining magnate. "With the aid of our good and patriotic friend here, we have done the simplest thing in the world—packed the lower levels of the Golden West Mine, some of the galleries of which extend directly through the Fault's main fracture, with sufficient quantities of Axelite. Less than two miles away is Trigger No. 1—the point at which the halted southwest wall of the rift presses with terrible intensity upon some obstacle deep down."

"So that's what the boys were shadowing me to find out!" Burke let his breath out in a long sigh. "Forty-eight hours, eh?"

"What you were doing up there, Burke, was taking the pulse of the San Andreas Fault. You were shooting squarely across the rift, and the interior angle between the two points proved there had been no movement in the past year. So now we wait."

"And let the old lady beat you to it!" The voice of Storke, harsh and strained, filled the pause. "Oh, sure, Whitman, you guys are scientists and I'm just an old desert rat who got lucky. But I know earthquake weather, and this is it—this hot, quiet, sultry stuff. Even the fog's hot. It's earthquake weather, I tell you, and she ain't gonna wait!" He turned on Burke. "Listen, you—call up Denver and tell 'em she ain't gonna wait!"

"Don't be silly, Storke," Whitman cut in. "There's no such thing as earthquake weather. It's just an old wives' tale. Our reading can't be wrong, and our leeway is ample."

"Sure, go ahead and take your readin's and ball up the whole scheme." The mining man's voice

was bitter. "I don't care if my mine's blown to glory—but, damn it, I want to see this stunt come off." He retreated into his gloomy silence again. Whitman turned to Burke.

"You know the worst. What about some sleep?"

"Well, boss, no beer here. Let's go!"

Lefty stood in the doorway, a grin on his face, a bandage on his skull. In his hand he waved a glass jar containing pinkish-gray objects. "I been luggin' these pigs' feet around for damn near a year, hopin' I'd find a bottle of beer to go with 'em, and I'll find it yet! What do we do now, boss?"

"Come 'ere, pardner." Storke beckoned to the big juicer. "Did you say pigs' feet?"

"Yeah. What's it to you?"

"Just that I've got a bottle of beer, pardner. One bottle. I can't think of a better reason for openin' it."

"Yippee!" Lefty's yell rang from the concrete walls, to Whitman's alarm. Burke laughed. "Don't worry, doctor," he said. "Now I feel fine, and I'm going to sleep. Good night."

Some indeterminate time later the signal sounded and Burke struggled to waken, automatically reaching for his right wrist. "C3 acknowledging," he mumbled. "Check."

"Stanyan checking. Get yourself awake, Burke. Urgent."

"I'm awake, sir." The small dugout chamber was stifling; he was perspiring heavily.

"Good. Got our complete operational plans?"

"Yes, sir."

"Then listen: zero is set for ten a. m.—today. Tell Whitman to proceed with installation of essential apparatus immediately. You have two hours."

"Two hours!"

"Well?"

"The staff here counted on a forty-eight-hour leeway, sir."

"I know, I know. Nevertheless, two hours is sufficient, and the job's got to be done instantly. Our plans have developed much more rapidly than we foresaw. We've tipped our own offensive."

"What, sir!"

"We've tipped 'em off—let it leak that we're attacking—an orthodox offensive, so far as they know, our objective being concentration of enemy material and troops at strategic points squarely on the line of movement. Understand?"

"Yes, sir."

"Only they've moved up faster than we anticipated. The situation's ripe at this moment, and we're not going to delay. That charge must go at ten."

"There must be no hitch in these plans. Our attacking forces will move on timetables that will bring them over the key sectors almost immedi-

ately following the detonation. Is that plain?"

"Yes, sir."

"Then go to it, Tom. Clearing."

He was gone, and Burke raced into the central vault to find there Whitman and the Englishman, Holly. Burke told them what had to be done.

Whitman and Holly looked at each other. "Trask won't be in until noon," Holly said.

"I know—great Scott, can't Denver wait? Good heavens!" Whitman was distraught.

"Make sense, man!" Burke spoke sharply.

"There's a robot radio receiving layout to be installed to catch the flash from Denver," Holly explained. "At the mine itself. I'll go out. I'm twig to the whole business. We'll do it, by Heaven! Only, it wants two men—"

"I'm going along," Burke snapped.

"O. K. Transportation's ready. Give us coffee, doctor. I'll get the little robot." He disappeared.

By the time Burke had reloaded his Menckel and gulped scalding coffee, he was with them again, and led the way up and down confusing flights of iron steps and through circling burrows, bearing the little boxlike radio apparatus in his arms like a precious jewel.

When they emerged into the upper world again it was into a kind of gray half light that told Burke—that, and the heat. It struck like a blast from an open oven, now, and there was a kind of electric tension in the air.

He looked up. The sky was black. Then he saw the twisted ends of steel trusses limned against an irregular patch of gray, and saw that the "sky" was the lofty roof of a partially ruined sound stage on the Terramont lot.

A dull-red light glowed on in the shadows ahead, and Burke saw the ship—a sleek, black thing with fore-and-aft props, and the scarlet globe and wings gleaming on her nose and flying surfaces. "Pretty, isn't she?" said Holly at his elbow. "Salvaged, bit by bit, from chunks of their ships. We've a couple of tricks up our sleeves yet in this game."

He swung up through the forward hatch, and Burke followed him. Gray daylight rolled over them then, and looking up, he saw the roof moving back out of the way. Holly set his controls at helicopter positions, there was a soft whirring, and then the noise of the powerful motors and the thrash of the props, rising to a thin whine as they lifted the dead weight of the ship off the floor of the stage.

They rose steadily into swirling, soupy fog. "Ground mist," said Holly. "Heat stews it out." He changed over to forward positions on the controls and the props dug into the gray fog. "Could be a lucky thing for us," Holly said. "Not that I expect any encounters, but you never know."

The black ship, to all intents an enemy patrol

craft, bore silently against the blank mass of mist. "Charming," the Englishman said at length, "the bland assurance of the lads in Denver, setting our schedule ahead a mere two days, in the child-like faith that all will go well. I trust you told them this makes everything a bit—impromptu?"

"Meaning?"

"Meaning I think it would be better if we had two ships and two crews for this *rather* important assignment, according to plan. Oh, I'm not anticipating anything. May be better this way. But I have known—er—contingencies to arise."

Burke looked at the compact little robot resting between his legs. He hefted it gently—about six pounds—not much of a weight to be carrying all the hopes of such a plan as this one. In the side was set what appeared to be an old-fashioned electric-light plug, and he mentioned it to Holly.

"Precisely what it is," replied the Englishman, grinning. "Happened to be handy, so we used it." "What's it go into?"

Holly grinned again. "An equally old-fashioned socket, like the one you used to have on the living-room baseboard. Only this socket is innocently installed in the old switchboard at the pit head of Storke's mine—The Golden West—out at Valyermo. Know the one?"

"So that's the place! Hell, yes. I remember it well—big layout with a high tippie."

"Well, the board's right at the foot of the tippie, rather cunningly concealed under a considerable quantity of rubbish. All we do is make a flying landing beside the tippie, you let me out and take her up again. Simple, what?"

"What about you?"

"Don't worry your head about me. From then on, you'll be the one to worry. It will be your unenviable duty—and there's no fog out there, rest assured—to hedge-hop this buggy behind the nearest foothills until I flash you the all clear—meaning that everything's set."

"Suppose you don't?"

"That's what I meant when I spoke of having two ships and two crews," said Holly gently. "If I don't flash inside thirty minutes it'll mean there's no me, no robot, and—no nothing. But don't worry. We'll do this right. We must."

"I see." Burke glanced at his watch. They had been five minutes in the air. "There's still one phase of this business I'm dark on."

"And what's that, my boy?"

"What quantities of the explosive are planted in Storke's mine? Also, what's your detonation technique?"

Holly eyed him humorously. "We're setting off about fifteen thousand tons of Axelite, Burke."

Burke paled. "But, good Lord—that's the equivalent of—"

"About one hundred and five thousand tons of

TNT." Holly laughed joyously. "In itself, planted from half a mile to three miles below the surface, it'll pretty well wreck that part of California. But that's not the point. The results of the initial blast—they'll wreck troop and material concentrations as far north as San Francisco and Bolinas Bay—five hundred miles from here! What's more, the job will be wrapped up in about three minutes flat, start to finish."

"Hm-m-m. And how many booster charges are you using for that amount of soup?"

"Plenty." Holly elevated his rear fins a shade. "The micro impulse touches off plain blasting caps, they hand the business to heavy charges of mercury fulminate, which explodes still larger amounts of picrate, which in turn will set off the Axelite." He paused.

"Which will, in turn," he added, "trigger something somewhere away down there inside. Cute, eh? From a spark to an earthquake in one easy fraction of a second."

"Lord!" Burke contemplated the scope of the operation for the first time in all its casual incredibility, its invincible perfection. "And who pulls the trigger?"

Holly shrugged. "Someone in Denver," he said. "Impersonal as hell, isn't it?"

The fog thinned. A yellow glare grew ahead, and suddenly they soared through the last wisps of mist into clear spaces.

Burke looked down. Beneath wheeled gray granite escarpments and peaks to which clung tiny dark pines—the highest range of the Sierra Madre. The sun was in the sky, but its brightness was dulled by a dirty bronze haze. Burke thought of "Santa Ana" weather, when desert winds hurled clouds of fine dust high into the air. Only now there was no wind. Nevertheless the heat was there—fierce, close. In a short time the inside of the cockpit was like a bake oven. Holly loosened his collar and wiped sweat from his eyebrows.

"Storke calls this 'earthquake weather,'" he said. "I call it awful!"

They passed the last ramparts of the mountains. The farther slopes swept sharply down to low hills. Beyond the hills, dim through the haze, the rolling sand dunes of the Mojave stretched northward endlessly.

Burke touched Holly's arm. "Look." He pointed away to the west, where a cloud of black specks drew dimly out of sight as they watched.

Holly nodded. "Probably some final squadrons moving up to front-line airdromes. Oh, they'll be in position, Burke—all along the line, from just west of here, running west and north through the Tehachapi, Tejon Pass, San Marcos Pass, Paso Robles, the Pacheco, San Jose, all around San Francisco, the Bay and the Golden Gate, and on north. It'll be the first time in history that an



attacker deliberately tipped his own offensive plans to an opponent—and dictated the enemy's disposition of men and equipment." He chuckled. "Wonder what Napoleon would think of it. Or Hitler, for that matter!"

They coasted downward now, and Holly, in turn, touched Burke and pointed. Burke looked downward. "I don't see anything."

Holly grinned. "That's it. You are looking, Lieutenant Burke, at the San Andreas Fault."

The altimeter read two thousand feet. Burke followed Holly's index finger and at first saw nothing.

Then, like an image on a developing photo negative, it began to appear.

Burke gasped at the magnitude of it. From west to east, as far as the eye could see, along the northern base of the mountain rampart, ran the great crease—a mighty furrow plowed by a promethean coultter. Below the now down-gliding ship, all the seeming minor features of a dreary landscape—low bluffs, stagnant water holes, dry

creek beds and washes, magically grouped themselves, and there it was—one. perfect string-straight line. He could see the canyon that was in reality the Fault, notching the faraway Tehachapi ridge on the left, and the deep, triangular slash of Swartout Canyon through which it climbed to the right.

"Precision job, what?" said Holly's voice. "They tell me that in the old days, may they come again, the pilots on the coastwise passenger runs used to navigate by it in clear weather, all the way from here to San Francisco. And there's no reason why they couldn't."

Burke thought of the concentrations of enemy ground and air equipment massing along that titanic line, all the way from Tejon Pass to the Golden Gate, and laughed aloud.

"Just occurred to me," he said; "remember how France had the Maginot Line? We've got one, too—the San Andreas Line."

"And there the likeness ends," said Holly. "See—there she is." He pointed downward. Below were the miniature buildings and tipple of a big



mining layout, which grew life-sized swiftly as Holly swept the ship gracefully around and slanted it downward.

Burke glanced at his watch. It was crowding nine o'clock. "An hour," he thought, and looked at Holly. The Englishman simply nodded and coasted on downward.

There was a patch of bare earth near the mine buildings—possibly a parking lot in other days. Holly elected a flying landing, for speed. Rolling to a stop, they were within two hundred feet of the nearest building. Beyond it towered the spidery tippie.

"Doesn't look as though anyone's been near it in years, does it? Shows how wrong you can be." Holly slid from his seat and undogged the hatch cover. A second later he stood on the hard ground beneath the nose, looking up through the hatchway. Burke handed him the radio. "Remember now—hedge-hop and wait for my flash. Set her down somewhere if you can. Give me thirty minutes, just to be on the safe side. But I won't be half that long. When I flash, drop in again and pick me up." He made as though to stick out his hand, then grinned shamefacedly.

"What the hell," he said. "One would think I was saying good-by. See you in half an hour!" He tucked the radio under his arm and trotted away across the hot earth.

Burke shut the hatch, grabbed the controls and took her off fast. As he made a climbing turn to head for the line of concealing foothills he saw the Fed ship coasting in above the tippie tower behind him. Automatically his eye sought the ground. He fancied he saw a figure that would be Holly's, darting into the shelter of the buildings.

Had the prowling patrol craft seen Holly? Undoubtedly they had seen *him* and the ship. But it was one of their own ships, to all appearances—

Then he realized that, even while he and Holly were landing, the ship must have sighted them and queried them. When no answer came, the Fed craft naturally followed them in.

They *had* seen Holly run for the mine, had instantly assumed he was the important unit in whatever was afoot, and had gone after him instead of the ship.

Had they gotten him?

If they had, it was too late to do anything. If not, he, Burke, could do nothing now. He had flown automatically as the thoughts raced through his mind, and now he was low behind a sharp range of half-grown hills, midway up the side of the main mountain mass. There was no sign of the other ship.

Keeping as close as he dared to slopes and cliffs, he throttled down and held to the shelter of the canyons. He took a look at his watch. Eight minutes since he had left Holly—the plugs in his

ears remained dead bits of sensotron. He tried another canyon.

At nine twenty-five he was soaking with sweat and taut with dread. In that time no signal of any kind had vibrated in his ears. As the hands on the dial reached the half-hour, he bore viciously on the controls and swung her up and over the ridge.

Away to the right some distance he descried the gaunt tippie through the haze. Burke threw caution to the winds. Feeding her everything, he shot the black craft downward and eastward. Within two minutes he was over the mine again and circling to come in on the level field.

He searched the area with his eyes as he came down; there was no moving thing in sight below.

It was a bad landing, but adequate. Burke squeezed his body through the hatch and felt the hard desert ground underneath him. A look at the sky revealed it, too, as empty. Then he raced across the baking surface of the field toward the pit head.

The buildings were corrugated iron, in bad shape—the usual machine shops, an office building, garages, and processing plants where cinnabar ore was transformed into mercury.

Everywhere reigned silence—dead silence and prostrating sunlight in the streets between the buildings. He saw, a short distance away over the desert, one of those long, low bluffs that looked so ordinary from here, and became so clearly a part of that endless earth furrow when viewed from aloft. He was in the Fault itself.

He came around the corner of a garage, with the complex great wheels and hoisting machinery of the tippie just ahead, and there was Holly, lying jackknifed on the hard, yellow roadway in the shadow of the tippie tower.

Half of the head was blasted away. A line of small, blackened craters stitched its way diagonally across the road to show how the patrol craft's Menckels had done it.

Again Burke's inspection of the skies revealed no trace of the killers. He turned the body over; Holly had fallen like a football player, his body infolding the small, cubic box of precious apparatus he had carried. Burke undid the stiffening arms and scanned the little set with beating heart. It was unhurt.

Fifty feet away was the boarded-in inclosure around the pit head, the base of the tippie mechanism. Burke walked across the street and into the shadowed space. Directly at his feet, inside, yawned the square mouth of the Golden West Mine. There was no elevator in sight; cables ran down into the blackness of the pit.

Against one wall lay a heap of short lumber. A pile of rubbish, Holly had said. He began tossing the boards aside—and then halted. Beneath his

feet the solid earth had trembled ever so faintly! It had been like the shiver of a bowl of jelly. He looked at the time—sixteen minutes to ten.

Had Burt Storke been right? Was the weather, not the carefully taken tests of science, the tip-off on the impending earthquake?

Right or not, somewhere in the depths of the great rift beneath, an obstructing mass had crumbled—the least bit—before crushing pressure. Burke leaned weakly against the wall, thinking of the detonator charges of mercury fulminate secreted beneath him. An unpleasant look was about all that was needed to set the stuff off.

But the earth was quiescent again. He threw the remaining lumber aside. There it was—a small box with a zinc door, set in the wall at the floor level. He opened it, disclosing a standard old-time electric switchboard installation, including a plain socket.

Burke set the robot against the socket and shoved; the plug slid into the socket; it fitted perfectly; it was O. K.

He straightened up and then realized that a man was standing in the doorway looking at him. A man wearing the gray uniform and black flying helmet, a stubby Menckel in his hand. He had light-blond hair and a pleasant, reddish face.

Burke's thought processes were automatic. As he met the Fed's eyes he saw that the man would shoot, not at him, but at the robot box on the floor. Even as he reached for his own pistol he was launching himself toward the foreigner and into the line of his fire.

The soldier's pistol *plopped* and there was a stab of fiery agony in Burke's left forearm even as the pistol in his right hand fired twice, and the man in gray, his midriff torn asunder, doubled and dropped.

The radio receiver still rested against the switchboard, untouched. Sure of that one thing, disregarding the flesh wound in his arm, Burke ran out of the inclosure, past Gerald Holly's up-turned, blond-mustached face and around the end of the building at the edge of the level field.

The Fed patrol ship stood close to his own, its props whirling idly. He could see the head and shoulders of the pilot through the gasteel cockpit panels. The man was not looking at him. Burke stepped back out of sight. In a few minutes he would begin worrying about his companion's absence. But also, in a few moments—He looked at his watch again. Just eight more minutes.

It was no longer a question of the success or failure of an operation. It was now the very simple problem of what was to become of Lieutenant Tom Burke? Under existing conditions he could count on exactly four hundred and eighty seconds more of life—a period which would be ter-

minated as a button was pressed in a room in Denver. Whether or not they got their earthquake thereafter would matter little to a man standing on fifteen thousand tons of Axelite 23!

Out there in the baking sunlight stood two perfectly good ships, in either of which a man could very possibly fly far enough, fast enough, to pass outside the field of the explosion which in a few seconds would make of this part of the country something unrecognizable.

Burke yelled at the top of his lungs, then banged lustily with one foot against the flopping corrugated iron side of the building. Lastly he fired his pistol twice into a patch of dry grass visible from the Fed ship. It flared up richly in flame and smoke.

Then he waited where he was. In a moment footsteps drummed across the field, and the pilot came around the end of the building, pistol drawn.

He fell at the first shot from the American's weapon. Then, clutching his cauterized arm, Burke dashed across to the idling enemy ship, and with his good hand dragged himself up through the lower hatch, into the cockpit. He closed the opening and swung her around facing westward.

He fed her the soup, and the powerful craft slanted across the field and climbed away from the earth. It was forty-five seconds until ten a. m.

Major John Stanyan glanced at the electrochron dial—

"Forty-five seconds, gentlemen," he announced to the little knot of officers beside his desk.

He took a last look around the huge, octagonal room. Operators were at the control panels of the eight big telescreens, each of which filled a wall sector. Samsonn, the seismologist, brooded over his instrument's turning drums.

On the desk beside the red button lay the final reports from coast operatives—Killion in San Francisco, Ruiz in San Jose, Stokes and Butler at Carrizzo Plains back of San Luis Obispo, all with the same message—enemy concentrations of ground and air material complete at all points, *within the area of maximum effect*, awaiting any offensive moves.

Stanyan smiled grimly. Undoubtedly this was putting all the military eggs into a single basket. Had ever an action depended on such premises as this one?

"Ten o'clock, gentlemen."

The group of officers stiffened. Stanyan could hear old General Collins' breath suck in.

He bent forward over the desk and pressed the red button.

Then he turned and stared at Samsonn. The long, thin savant was bent silently above his seismograph, like an alchemist. A full minute ticked away in silence.

Stanyan could not sustain the tension. He felt that something must snap. No one said anything. He strode over to the scientist.

"For Heaven's sake, Samsonn—nothing?"

The seismologist pointed a long finger at the turning drums, on which the whiskers traced undeviating black hairlines. "Nothing yet."

Stanyan turned away, shoulders sagging.

Samsonn spoke again. "It takes time for the earth to transmit vibrations, major. I have known of—"

There were no preliminary oscillations; the sharp jar shook the room and the men in it like a vehicular collision.

"Heavens!" It was a sharp cry from Samsonn. "Seven hundred miles! It's impossible—oh!" He uttered an exclamation of dismay.

"What was it? What was it?" Stanyan was almost on top of him. He swept him aside and bent to the instrument, then straightened slowly.

"It's stopped," he said.

"It's broken!" wailed Samsonn.

"Broken?"

"The intensity," moaned Samsonn. "That jar—never in all my experience—" He was babbling. "And now we shall never know the intensity, never know—"

"I know all I need to know!" Stanyan was back at the desk. "On screens!" he commanded the operators. "Let's have a look, gentlemen!"

The ship's nose shot skyward as tortured air streams tossed and tumbled the black craft. Then the sound of the explosion struck Burke like a physical blow, followed by a train of mighty rumblings—the delayed reports from the deeper charges.

Fighting the helpless ship, Burke had a glimpse of an irregular segment of the desert rising into the upper air like a gigantic table, a "tablecloth" of dust and dirt streaming from the edges of the main mass. High above it hurtled tiny fragments that could have been bits of buildings—

The worst of the concussion passed, and he looked automatically for the earth.

Then he realized that he was about to crash, and he manipulated the elevators frantically. As he did so the rugged expanse almost directly under him sprang apart in a gaping crack that opened toward the western horizon at incredible speed.

It seemed to the American's horrified gaze that the Gargantuan fracture literally raged over the desert and into the low mountains just ahead. The solid earth on both sides undulated westward, rising and falling in long, low, swiftly moving waves.

The hills sagged and rose again, and up from below welled a deep, terrifying rumble, less loud than the explosion, yet infinitely greater and more terror-inspiring. To the sickened Burke it seemed that the sound issued out of the great chasm.

The rift closed again. The jagged sides of the abyss rushed together with such force that chunks of the crust shot skyward and the collision drove the earth up into a ridge where the great crack had been.

Weak and trembling, Burke clung to the controls of the still-rocking ship, which maintained a westward course. But when he tried to turn south he found that the helm was jammed.

Ahead loomed the mountains. He could still use the elevators.

There was nothing to do but try to set her down.

An overwhelming terrestrial disaster is the more horrifying to an army which believes utterly in the invincibility of weapons made by men, which believes that mastery of ingenious machines means mastery of a world.

The armies of the marshal had expected an offensive—one final desperate attack delivered by cornered peoples, and they awaited it at the spots where their unmatched intelligence service had learned it would be concentrated.

As they waited, the very earth under them broke apart; the solid soil rose in waves like a horrible sea. Men and machines, lethal vehicles of earth and sky, were hurled upon one another by mighty forces from nowhere, in a rumbling, seething yeast of flesh and metal.

Abysses opened, received the tumbling, armored hosts, then closed again with crushing force. Great airports had their surfaces ridged and rippled like frozen oceans—

As the crack in California split and moved from north to south, half a score of branching rifts moved in sympathy. Sharp rocks ran out along branching fractures like sap in a tree.

At ten six the first observation ship reported from a position between San Jose and Salinas, and No. 6 Screen in Stanyan's underground chamber flashed to life and action.

The men gasped as they gazed, apparently looking down from a height of a few hundred feet. A park of armored units had been jumbled and tossed like children's building blocks. Many of the huge, glossy machines lay on their sides like helpless beetles.

A blow seemed to have struck them from one side and swept them all together in the opposite direction, like pebbles before surf.

The little figures of men could be seen, some dashing furiously about, others moving slowly, apparently painfully, and many lay still.

"That is not directly on the Fault," Samsonn, the seismologist, commented. "I recognize the terrain, and it is some nine or ten miles eastward of the main rift. The force of the shock was, of course, much less at this point."

Stanyan cut in the voice of the observer.

"I'm right over a big armored park. You can see what's happened. There are no enemy ships in the air—none at all. My guess would be that those that weren't wrecked, the pilots are too woozy to take 'em up and fight 'em. Wait!"

The scene on the screen wheeled in a great circle, then the observer spoke again. "They're our own boys coming like bats out o' hell. I'm going upstairs out of the way."

The picture sank away from the onlookers in the chamber, and a mass of dun-colored ships fled across the screen between them and the ground. Seconds later came the flash and dust-and-smoke clouds of what obviously were huge explosions on the site of the piled-up armored mass below.

"They're peppering 'em now," the observer declared. "I can see more of our ships coming in, away to the north. I'm putting the view screen on 'em for you—"

Stanyan cut the controls to Screen No. 2, and the broad blue expanse of San Francisco Bay lay below them from a great height, the middle air between their observer and the water filled with mighty "flying freight cars" towing fans of cargo gliders from which they could see the men and equipment taking off and floating away to earth.

Away to the north there were bomb flashes.

General Collins cut in No. 1, and the levels of the San Fernando Valley sprang to view, with parts of Los Angeles in sight beyond the hilltops.

American planes filled the sky. There was no fighting in sight.

General Deems swore softly. "It's a blasted mop-up job," he said. "Damned if I don't feel let down!"

Over the hills from the east a squadron of clumsy, slow-moving aircraft soared into the screen's view, slanting down toward the valley floor, landing in a group.

As they came to earth the broad flying surfaces bent slowly back until they fitted trimly against the sides of the heavy machines. In another moment an armored ground battalion was launching out across the valley levels.

Deems swore again. "There's no blasted use for those flying rhinos," he pronounced. "Get 'em back here."

He turned to Collins. "Let's go to work." He summoned an aid. "Tell Grant to report to me in Nashville on the mop-up."

He spoke to Stanyan. "Of course, you've handled the foreign situations since we attacked?"

"I have, sir."

"Good. Let me know about it at six-hour intervals. And now, gentlemen—this isn't a two-front war any more, and I think we can finish the east coast in our own way!"

Burke first-aided his arm out of the enemy ship's well-stocked chest. He walked shakily off a few paces and looked at the ship, pancaked up the sage-covered hillside.

Maybe some day he'd come back and get her for a souvenir. Maybe. He paused and listened. A drift in the breeze brought the sound of heavy explosions from somewhere to the west. There didn't seem to be many of them, though.

He turned and climbed wearily up the knoll, shoving a way through the dusty sage. Once he nearly walked into a jagged rift in the earth ten feet wide and deeper than two men, zigzagging down the slope. He climbed higher to get around it, and turned the angle of the hill.

The ship was there where he had left her, thirty hours ago—only now she was lying on her back, her landing gear sticking awkwardly in the air. Burke made his way to the ship. Up the hill in the sunlight he could see the clearing where the bench mark was.

He jimmied the hatch cover and stuck an expert hand inside the topsy-turvy cockpit. It came out with a flask in it, and he unscrewed the cap and drank deeply. He sighed luxuriously. Now he ought to call Denver. He looked at the round little dial on his wrist. Then he looked at the loosened cap on the flask.

"To hell with it," Burke said. He removed the cap and threw it away into the sagebrush.

THE END.

# MAD



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# THE EMBASSY

By Martin Pearson

● A new author suggests a rather nice point. Might be, you know—and wouldn't the F.B.I. be surprised if they stumbled on something like that by mistake—

Illustrated by Orban

"I came to New York," said Grafius, "because I am sure that there are Martians here." He leaned back to blow a smoke ring, followed it to its dissolution in the air-conditioning outlet with his cool, gray eyes.

"Iron Man!" bawled Broderick, quick as the snap of a relay. He backed around behind his chair as the office door opened and the formidable Mr. Doolan appeared, fists cocked on the ready.

"It's a whack," declared Broderick, pointing at Grafius. "It says there are Martians in New York."

Doolan, probably the most muscular, certainly the dumbest, cop ever kicked out of the police department, eyed Grafius dimly as he clamped the caller's shoulder in a colossal vise of a hand. "Make with the feet," he said, groping for his words. "Hit the main, but heavy."

"He means 'get out,'" explained Broderick. "I

echo his sentiments completely."

Grafius, rising leisurely, fished in his breast pocket and chucked a sharkskin wallet onto the desk. "Look it over," he said. "Well worth your time." He stood impassively as Broderick drew from the wallet several large bills.

"Holy-holy," whispered the inspector general as he fingered the money. "I didn't think you cared." Briskly he seated himself again and waved away Doolan.

"Naturally," he explained, toying with Grafius' card, "I'm loath to part with all this lettuce. Your remark about our little speckled friends, the Martians, I shall ignore. This is a small, young agency, new to the art of private investigation. Martians are outside our ken at this moment of the year 1942, but if there's anything in a more conventional line we can do for you—"

"Nothing at all, thank you," said Grafius of Springfield. He recovered his wallet and card from the desk. "However, if you'd care to listen with an open mind—"

"Open wider than the gates of hell," said the private detective, his eyes on the vanishing currency. "Tell your tale."

Grafius crushed out his cigar. "Suppose you were a Martian," he said.

Broderick snickered. "One of the small ones with three tails, or the nasty size with teeth to match?" he asked amiably.

"I'm sorry," said the man from Springfield. "My data doesn't go as far as that, but in a moment I'll give you a reasonable description of the Martians that are in New York."

"When I say Martian, of course, the meaning is 'extraterrestrial of greater civilization than ours.' They may not be Martians. They may even be from another galaxy. But assume you are what I call a Martian, and that you want to keep in touch with Earthly civilization and advancement. Just where would you go?"

"Coney Island?" helplessly suggested the detective.

"Naturally not," said Grafius severely. "Nor to Sea Breeze, Kansas. Nor to Nome, Alaska. Nor to Equatorial Africa. You wouldn't go to some small town. You wouldn't go to some out-of-the-way part of the world where living is anywhere from twenty to several hundred years behind human progress. This will eliminate Asia and Africa. It will eliminate almost all of Europe and South America."

"I get it," said Broderick. "The Martians would head for the U. S. A."

"Exactly. The United States today is the most technically and culturally advanced nation on Earth. And, further, if you came to the United States, you'd come to New York. You would come because it's the largest human concentration on

the globe. It's the economic capital of the continent—the very hemisphere! You agree?"

"Sure," said Broderick. "And you wouldn't be in London because of the war. You can't observe human culture while the shells are popping."

"Exactly. But I still haven't proved anything. To continue: it's quite clear to me that we Earth people aren't the only intelligent, civilized race in the Universe. Out of the infinitude of stars and planets there most definitely, mathematically *must* be others. Mars—to continue with my example—is older than Earth geologically; if there were Martians, and if their evolutionary history corresponded with ours, they would certainly be further advanced than we."

"And I will make one more hypothesis: it is that we Earth people are today on the verge of space conquest, and that any race further advanced than we must have already mastered space flight."

"Go on," said Broderick, who was beginning to look scared. He was a naturally apprehensive type, and the thought that Martians might be just around the corner didn't help him.

"Certainly. But you needn't look so worried, for the Martians won't show up in your office. They must work strictly under cover, since from their point of view—advanced, you will remember—it would be foolish to make themselves known to us as long as we humans are a military, predatory race. It would be a risk which no advanced mentality would take."

"How long has this been going on?" asked Broderick agitatedly.

"Judging from the geology of Mars, some hundreds of years," replied Grafius dreamily. "They've been watching, waiting—"

"You said you could describe them," snapped the detective. "What do they look like?"

"I can't describe their appearance," said Grafius, down to Earth again. "But this is what they most probably are: a group of ordinary-appearing people who live together. In downtown New York, close to newspapers, publishers, news cables, communication centers and the financial powers of Wall Street. They would have no obvious means of support, for all their time must be taken up with the observation that is their career. They almost certainly live in a private house, without prying janitors who would get curious about their peculiar radio equipment."

"And our best bet—they are sure to receive every major paper and magazine, in all the languages of the world."

"I get it," said Broderick. "Very sweet and simple. But what's your reason for wanting to meet up with the Martians social, if I may ask?"

"Call it curiosity," smiled Grafius. "Or an inflated ego. Or merely the desire to check my logic."

"Sure," said Broderick. "I can offer you the following services of my bureau: bodyguard—that's Iron Man, outside. Think you'll need him?"

"Certainly not," said Grafius of Springfield. "You have no right to suppose that the Martians would stoop to violence. Remember their advanced mentality."

"I won't insist," said the detective. "Second, I can check on all subscription departments of the big papers and magazines. Third, the radio-parts lead. Fourth, renting agents. Fifth, sixth and seventh, correlation of these. Eighth, incidentals. It should come to about—" He named a figure. The remainder of the interview was purely financial in character.

Iron Man Doolan wasn't very bright. He knew how to walk, but occasionally he forgot and would try to take both feet off the ground at once. This led to minor contusions of the face and extremities, bruises and gashes that the ex-cop never noticed. He was underorganized.

It taxed him seriously, this walking about in a strange neighborhood. There were hydrants and traffic signals in his way, and each one was a problem in navigation to be solved. Thus it took him half an hour to walk the city block he had been shown to by Broderick, who was waiting nervously, tapping his feet, in a cigar store.

"He's dull—very dull," confided the detective to Grafius, who sipped a coke at the soda fountain. "But the only man for a job like this. Do you think they'll make trouble for him?"

Grafius gurgled through the straw apologetically. "Perhaps," he said. "If it is No. 108—" He brooded into his glass, not finishing the sentence.

"It certainly is," said Broderick decidedly. "What could it be but the Martian embassy that takes everything from *Pic* to the Manchester *Guardian*?"

"Polish revolutionaries," suggested the man from Springfield. "Possibly an invalid. We haven't watched the place for more than a couple of weeks. We really haven't any data worth the name."

The detective hiccupped with nervousness, hastily swallowed a pepsin tablet. Then he stared at his client fixedly. "You amaze me," he stated at last. "You come at me with a flit-git chain of possibilities that you're staking real cash on. And once we hit a solid trail you refuse to believe your own eyes. Man, what do you want—a sworn statement from your Martians that they live in No. 108?"

"Let's take a look," said Grafius. "I hope your Mr. Doolan gets a bite."

"Iron Man, I repeat, is not very bright. But he's pushed buttons before, and if somebody answers the door he's going to push the button on

his minicam. I drilled that into his—"

He broke off at the sound of a scream, a shriek, a lance of thin noise that sliced down the street. Then there was a crash of steel on concrete. The two dashed from the shop and along the sidewalk.

They stopped short at the sight of Iron Man Doolan's three hundred pounds of muscle grotesquely spattered and slimed underneath a ponderous safe. A colored girl, young and skinny, was wailing in a thin monotone, to herself: "First he squashed and then it fell. First he squashed and then—"

Broderick grabbed her by the shoulders. "What happened?" he yelled hoarsely. "What did you see?"

She stopped her wail and looked directly and simply at him. In an explanatory tone she said: "First he squashed—and then it fell." Broderick, feeling sick, let go of her, vaguely heard her burst into hysterical tears as he took Grafius by the arm and walked him away down the street.

Somewhere on Riverside Drive that evening the detective declared: "I know it sounds like a damned childish trick, but I'm going to get drunk, because I had a lot of affection for Doolan. He would understand it as a fitting tribute."

"He was, in his way, the perfect expression of a brutal ideal," mused Grafius. "In an earlier, less sophisticated day he would have been a sort of deity. I'll go with you, if you don't mind."

In a place whose atmosphere was Chinese they drank libations to the departed Iron Man, then moved on down the street. Midnight found Broderick pie-eyed, but with a tense control over his emotions that he was afraid to break through.

It was Grafius at last who suggested calmly: "They are a menace. What shall we do about them?"

Broderick knew just exactly what the man from Springfield meant. With a blurred tongue he replied: "Lay off of them. Keep out of their way. If we make trouble, it's curtains for us—what they did to Doolan is all the proof I need. I know when I'm licked."

"Yes," said Grafius. "That's the trouble with you. Doolan didn't know—" He collapsed softly over the table. Broderick stared at him for a long moment, then gulped the rest of his drink and poked his client in the shoulder.

Grafius came up fighting. "Martians," he shrilled. "Dirty, dusty, dry sons of—"

"Take it easy," said the detective. He eyed a girl sitting solo at a nearby table, who eyed him back with a come-on smile.

Grafius stared at the interchange broodingly. "Keep away from her," he said at last. "She may be one of the Martians—filth they are—unspeakable things—bone-dry monsters from an undead world—" He canted over the table again.

The liquor hit Broderick then like a padded tent maul. He remembered conducting a fantastically polite Gallup poll of the customers in the saloon, inquiring their precise sentiments toward "our little feathered friends of the Red Planet."

He should have known better than to act up in Skelley's Skittle House. Skelley was a restaurateur slow to wrath, but he had his license to take care of, as well as his good name. And Skelley, like so many of his kind, got a big kick out of seeing what a Micky Finn could do.

Grafius was completely unconscious when Broderick, with elaborate protestations of gratitude, accepted the "last one on the house." He tossed down the rye and quaffed the chaser. Skelley, ever the artist, had stirred the chloral into the larger glass.

The stuff took effect on Broderick like a keg of gunpowder. After the first few spasms he was utterly helpless, poisoned to within an inch of his life, lying heaving on the floor, his eye whites rolling and yellowed, pouring sweat from every hair, actually and literally wishing he were dead and out of his internal agony. That is what a skilled practitioner can do with the little bottle behind the bar.

He saw the waiter and Skelley go through Grafius' pockets, calling for witnesses among the customers that they were taking no more than their due. The customers heartily approved; a woman whose face was baggy and chalked said: "Peeble wh' dunno hodda drink li' gennlem'n shunt drink 't all!" She hiccupped violently, and a waitress led her to the powder room for treatment.

Skelley laboriously read the calling card in Grafius' vest. "That ain't no help," he declared wittily. "It don't say which Springfield."

Broderick saw and felt himself being rolled over, his pockets being dipped into. The spasms began again, ending suddenly as he heard the voice of his host declare: "No. 108! Snooty neighborhood for a lush like that."

The detective tried to explain, tried to tell the man that it wasn't his address but the address of the Martians he'd chanced on in his pockets. But all the voice he could summon up was a grunt that broke to a peep of protest as he was hauled up and carried out in Skelley's strong and practiced arms.

He and Grafius were dumped into a taxi; between spasms he heard the restaurateur give the hackie the Martians' address.

Broderick was going through a physical and mental hell, lying there in the back of the cab. He noted through his nauseous haze the street lights sliding by, noted the passage of Washington Square, sensed the auto turning up Fifth Avenue. His agony lessened by Fiftieth Street, and

for a moment he could talk. Hoarsely he called to the cabby to stop. Before he could amplify and explain, the retching overtook him again, and he was helpless.

He passed out completely at a long traffic-light stop; he never felt the car turn right. The next thing he knew the cabby was bundling him out of the rear, leaning him beside Grafius against the door of No. 108. The cabby leaned against the buzzer for a moment, then drove off.

Broderick could only stare with dumb agony as the door opened. "Dear, dear!" said the soft, shocked voice of a woman.

"Are they anyone we know, Florence?" demanded a man.

"Unfortunate creatures, whoever they are," said the woman.

Broderick got a glimpse of a handsome, ruddy face as the man carried him into the hall, the woman following with Grafius. The man from Springfield awoke suddenly, stared into the face of the woman, then set up a shrill screaming that did not end until she had punched him twice in the jaw.

"Shame!" she declared. "We're kind enough to take you two sots in out of the cold and then you get the D. T.'s!" There was a warm smile lurking in the corners of her mouth.

The man opened a door somewhere, and Broderick apprehended a smooth, continuous clicking sound, very much faster and more rhythmical than a typewriter.

"There's something familiar about this boy, Florence," declared the man as he studied the helpless detective.

She wrinkled her brows prettily. "Of course!" she cried at last with a delighted smile. "It's that Broderick!"

"Yes. That Broderick," said the man. "And this other one—"

"Oh!" cried the woman, in tones of ineffable loathing. "Oh!" She turned her head away as though sickened.

"Yes," said the man, his face wrinkled and writhing with unspeakable disgust. "This other one is the Grafius he was so often thinking about."

The woman turned again, her face raging angry, black with the blackest passion. Her high French heels ground into the face of the dead-drunk Grafius again and again; the man had to pull her off at last. It was plain that he himself was exercising will power of the highest order in control of an impulse to smash the mangle the despised one.

"Grafius!" he said at last, as though the word were a lump of vileness in his mouth. "That Venusian!" He spat.

The woman broke free from his grasp, kicked the mutilated face. Broderick heard the teeth splintering in the abused mouth.



## IN TIMES TO COME

Next issue brings the first part of "Beyond This Horizon," by Anson MacDonald. I mentioned that briefly last month as the long novel which MacDonald had barely finished when the Japs decided the world was too tame, too boring, and decided to try national hara-kiri. "Beyond This Horizon" represents the last piece of MacDonald's work we're likely to see for some time; the author is, like the United States fleet, "somewhere in the Pacific." In fact, he's with the fleet, I believe.

Considering what started just a few days after MacDonald had finished his work on that yarn, it must have made him feel a little bitter. The theme is, basically, a consideration of what problems come up after all the minor problems of economics and government, war and peace, how to make a living and how to enjoy that living have been solved. MacDonald presents a real proposition to chew on! I'll leave it for the story to explain; I can't do it adequately here. But I'll mention some items that sort of tickled me—

Hamilton Felix is the hero. He's engaged in a business only MacDonald could have thought of—and is so engaged for perfectly sound reasons. He's a professional inventor of super-doooper pin-ball games.

There's a man from Never-Never Land in it, too. He's a man from a world that never was—though we thought it was. He's from the year 1926, when all the world had, we knew, entered the Golden Age of permanent prosperity, when the War to end War was newly finished, and Peace would go on forever. Forgotten that time, forgotten those "facts" we all knew and lived by? When all good All-American halfbacks turned bond salesmen and

lived happily ever after? Well, you'll meet one straight out of that land that was a Never-Never Land if ever there wasn't one.

And next month begins something new for us, a new department. I don't like departments, generally speaking, because they take away space that could be used for stories. And usually a professional writer or a neatly fitted plot can be more entertaining than a department.

This one, though, it seems to me, offers possibilities. It's "Probability Zero"—a wide-open contest for all and sundry liars. Science-fiction stories consist of guesses as to what probably will happen; a science-fiction tall story consists of something that sounds practically logical, but that—well, lives up to the department title. It not only isn't probable; it isn't merely improbable. It downright couldn't happen. Like that yarn about the grandfather clock that was so old the shadow of the pendulum had worn a hole in the back. You see what I mean? It's almost logical sounding.

Some of the more regular authors have contributed a few starters as examples; beginning with the following issue—the May number—it will be an open contest.

There will be fairly juicy prizes. Twenty dollars first prize, ten dollars second prize, and five dollars third prize. The prizes will be distributed on the basis of the votes of the readers as to which man actually is the biggest and best liar.

You can start contributing now, if you wish, but I'd suggest you take a look at the practically logical items appearing next month. Each little tale should run about five hundred to seven hundred and fifty words.

*The Editor.*

## ANALYTICAL LABORATORY

"Second Stage Lensmen" took first place with a very nearly clean sweep. The diversity of opinion thereupon set in with a vengeance—and the characteristic high point-scores. You'll notice that second place went to "Mechanistria" with a point-score of 2.65; it was placed everywhere from first to sixth by various readers. Similarly the other stories got high and low ratings. The result of diversified votes tends to give higher point-scores for all stories—an item that quickly shows whether there was a real contest for position. There's a difference of two points in the point-scores of "Breakdown" and "Invaders," actually—

but it's in the third decimal place. That's a tie, it seems to me!

Place	Story	Author	Points
1.	Second Stage Lensmen	E. E. Smith	1.13
2.	Mechanistria	E. F. Russell	2.75
3.	Tied:		
	Breakdown	J. Williamson	3.12
	Invaders	L. R. Hubbard	3.12
4.	Fugitive from Vanguard	N. L. Knight	3.5
5.	Soup King	Colin Keith	4.7

*The Editor.*



# GOLDFISH BOWL

By Anson MacDonald

● It seemed a fairly complete, if brief, way of explaining to the world—"Creation Took Eight Days." But they hadn't been in the Goldfish Bowl to gain the understanding—

Illustrated by Kramer

On the horizon lay the immobile cloud which capped the incredible waterspouts known as the Pillars of Hawaii.

Captain Blake lowered his binoculars. "There they stand, gentlemen."

In addition to the naval personnel of the watch,

the bridge of the hydrographic survey ship U. S. S. *Mahan* held two civilians; the captain's words were addressed to them. The elder and smaller of the pair peered intently through a spyglass he had borrowed from the quartermaster. "I can't make them out," he complained.

"Here—try my glasses, doctor," Blake suggested, passing over his binoculars. He turned to the officer of the deck and added, "Have the forward range finder manned, if you please, Mr. Mott." Lieutenant Mott caught the eye of the bos'n's mate of the watch, listening from a discreet distance, and jerked a thumb upward. The petty officer stepped to the microphone, piped a shrill stand-by, and the metallic voice of the loud-speaker filled the ship, drowning out the next words of the captain:

"Raaaaange 1! Maaaaaaaan and cast loose!"

"I asked," the captain repeated, "if that was any better."

"I think I see them," Jacobson Graves acknowledged. "Two dark vertical stripes, from the cloud to the horizon."

"That's it."

The other civilian, Bill Eisenberg, had taken the telescope when Graves had surrendered it for the binoculars. "I got 'em, too," he announced. "There's nothing wrong with this 'scope, Doc. But they don't look as big as I had expected," he admitted.

"They are still beyond the horizon," Blake explained. "You see only the upper segments. But they stand just under eleven thousand feet from water line to cloud—if they are still running true to form."

Graves looked up quickly. "Why the mental reservation? Haven't they been?"

Captain Blake shrugged. "Sure. Right on the nose. But they ought not to be there at all—four months ago they did not exist. How do I know what they will be doing today—or tomorrow?"

Graves nodded. "I see your point—and agree with it. Can we estimate their height from the distance?"

"I'll see." Blake stuck his head into the chart-house. "Any reading, Archie?"

"Just a second, captain." The navigator stuck his face against a voice tube and called out, "Range!"

A muffled voice replied, "Range 1—no reading."

"Something greater than twenty miles," Blake told Graves cheerfully. "You'll have to wait, doctor."

Lieutenant Mott directed the quartermaster to make three bells; the captain left the bridge, leaving word that he was to be informed when the ship approached the critical limit of three miles from the Pillars. Somewhat reluctantly, Graves and Eisenberg followed him down; they had barely time enough to dress before dining with the captain.

Captain Blake's manners were old-fashioned; he did not permit the conversation to turn to shop talk until the dinner had reached the coffee and cigars stage. "Well, gentlemen," he began, as he

lit up, "just what is it you propose to do?"

"Didn't the navy department tell you?" Graves asked with a quick look.

"Not much. I have had one letter, directing me to place my ship and command at your disposal for research concerning the Pillars, and a dispatch two days ago telling me to take you aboard this morning. No details."

Graves looked nervously at Eisenberg, then back to the captain. He cleared his throat. "Uh—we propose, captain, to go up the Kanaka column and down the Wahini."

Blake gave him a sharp look, started to speak, reconsidered, and started again. "Doctor—you'll forgive me, I hope; I don't mean to be rude—but that sounds utterly crazy. A fancy way to commit suicide."

"It may be a little dangerous—"

"Hummph!"

"—but we have the means to accomplish it, if, as we believe to be true, the Kanaka column supplies the water which becomes the Wahini column on the return trip." He outlined the method. He and Eisenberg totaled between them nearly twenty-five years of bathysphere experience, eight for Eisenberg, seventeen for himself. They had brought aboard the *Mahan*, at present in an uncouth crate on the fantail, a modified bathysphere. Externally it was a bathysphere with its anchor weights removed; internally it much more nearly resembled some of the complicated barrels in which foolhardy exhibitionists have essayed the spectacular, useless trip over Niagara Falls. It would supply air, stuffy but breathable, for forty-eight hours; it held water and concentrated food for at least that period; there were even rude but adequate sanitary arrangements.

But its principal feature was an anti-shock harness, a glorified corset, a strait jacket, in which a man could hang suspended clear of the walls by means of a network of Gideon cord and steel springs. In it, a man might reasonably hope to survive most violent pummeling. He could perhaps be shot from a cannon, bounced down a hillside, subjected to the sadistic mercy of a baggage smasher, and still survive with bones intact and viscera unruptured.

Blake poked a finger at a line sketch with which Graves had illustrated his description. "You actually intend to try to ascend the Pillars in that?"

Eisenberg replied. "Not him, captain. Me."

Graves reddened. "My damned doctor—"

"And your colleagues," Eisenberg added. "It's this way, captain: There's nothing wrong with Doc's nerve, but he has a leaky heart, a pair of submarine ears, and a set of not-so-good arteries. So the Institute has delegated me to kinda watch over him."

"Now look here," Graves protested, "Bill, you're not going to be stuffy about this. I'm an old

man; I'll never have another such chance."

"No go," Eisenberg denied. "Captain, I wish to inform you that the Institute vested title of record to that gear we brought aboard in me, just to keep the old war horse from doing anything foolish."

"That's your pidgin," Blake answered testily. "My instructions are to facilitate Dr. Graves' research. Assuming that one or the other of you wish to commit suicide in that steel coffin, how do you propose to enter the Kanaka Pillar?"

"Why, that's your job, captain. You put the sphere into the up column and pick it up again when it comes down the down column."

Blake pursed his lips, then slowly shook his head. "I can't do that."

"Huh? Why not?"

"I will not take my ship closer than three miles to the Pillars. The *Mahan* is a sound ship, but she is not built for speed. She can't make more than twelve knots. Some place inside that circle the surface current which feeds the Kanaka column will exceed twelve knots. I don't care to find out where, by losing my ship.

"There have been an unprecedented number of unreported fishing vessels out of the islands lately. I don't care to have the *Mahan* listed."

"You think they went up the column?"

"I do."

"But, look, captain," suggested Bill Eisenberg, "you wouldn't have to risk the ship. You could launch the sphere from a power boat."

Blake shook his head. "Out of the question," he said grimly. "Even if the ship's boats were built for the job, which they aren't, I will not risk naval personnel. This isn't war."

"I wonder," said Graves softly.

"What's that?"

Eisenberg chuckled. "Doc has a romantic notion that all the odd phenomena turned up in the past few years can be hooked together into one smooth theory with a single, sinister cause—everything from the Pillars to LaGrange's fireballs."

"LaGrange's fireballs? How could there be any connection there? They are simply static electricity, all the same heat lightning. I know; I've seen 'em."

The scientists were at once attentive, Graves' pique and Eisenberg's amusement alike buried in truth-tropism. "You did? When? Where?"

"Golf course at Hilo. Last March. I was—"

"That case! That was one of the disappearance cases!"

"Yes, of course. I'm trying to tell you. I was standing in a sand trap near the thirteenth green, when I happened to look up—" A clear, balmy island day. No clouds, barometer normal, light breeze. Nothing to suggest atmospheric disturb-

ance, no maxima of sunspots, no static on the radio. Without warning a half dozen, or more, giant fireballs—ball "lightning" on an unprecedented scale—floated across the golf course in a sort of skirmish line, a line described by some observers as mathematically even—an assertion denied by others.

A woman player, a tourist from the mainland, screamed and began to run. The flanking ball nearest her left its place in line and danced after her. No one seemed sure that the ball touched her—Blake could not say although he had watched it happen—but when the ball had passed on, there she lay on the grass, dead.

A local medico of somewhat flamboyant reputation insisted that he found evidence in the cadaver of both coagulation and electrolysis, but the jury that sat on the case followed the coroner's advice in calling it heart failure, a verdict heartily approved by the local chamber of commerce and tourist bureau.

The man who disappeared did not try to run; his fate came to meet him. He was a caddy, a Japanese-Portygee-Kanaka mixed breed, with no known relatives, a fact which should have made it easy to leave his name out of the news reports had not a reporter smelled it out. "He was standing on the green, not more than twenty-five yards away from me," Blake recounted, "when the fireballs approached. One passed on each side of me. My skin itched, and my hair stood up. I could smell ozone. I stood still—"

"That saved you," observed Graves.

"Nuts," said Eisenberg. "Standing in the dry sand of the trap was what saved him."

"Bill, you're a fool," Graves said wearily. "These fireball things perform with intelligent awareness."

Blake checked his account. "Why do you assume that, doctor?"

"Never mind, for the moment, please. Go on with your story."

"Hm-m-m. Well, they passed on by me. The caddy fellow was directly in the course of one of them. I don't believe he saw it—back toward it, you see. It reached him, enveloped him, passed on—but the boy was gone."

Graves nodded. "That checks with the accounts I have seen. Odd that I did not recall your name from the reports."

"I stayed in the background," Blake said shortly. "Don't like reporters."

"Hm-m-m. Anything to add to the reports that did come out? Any errors in them?"

"None that I can recall. Did the reports mention the bag of golf clubs he was carrying?"

"I think not."

"They were found on the beach, six miles away."

Eisenberg sat up. "That's news," he said.



"Tell me: Was there anything to suggest how far they had fallen? Were they smashed or broken?"

Blake shook his head. "They weren't even scratched, nor was the beach sand disturbed. But they were—ice-cold."

Graves waited for him to go on; when the captain did not do so he inquired, "What do you make of it?"

"Me? I make nothing of it."

"How do you explain it?"

"I don't. Unclassified electrical phenomena. However, if you want a rough guess, I'll give you one. This fireball is a static field of high potential. It englobes the caddy and charges him, whereupon he bounces away like a pith ball—electrocuted, incidentally. When the charge dissipates, he falls into the sea."

"So? There was a case like it in Kansas, rather too far from the sea."

"The body might simply never have been found."

"They never are. But even so—how do you account for the clubs being deposited so gently? And why were they cold?"

"Dammit, man, I don't know! I'm no theoretician; I'm a maritime engineer by profession, an empiricist by disposition. Suppose you tell me."

"All right—but bear in mind that my hypothesis is merely tentative, a basis for investigation. I see in these several phenomena, the Pillars, the giant fireballs, a number of other assorted phenomena which should never have happened, but did—including the curious case of a small mountain peak south of Boulder, Colorado, which had its tip leveled off 'spontaneously'—I see in these things evidence of intelligent direction, a single conscious cause." He shrugged. "Call it the 'X' factor. I'm looking for X."

Eisenberg assumed a look of mock sympathy. "Poor old Doc," he sighed. "Sprung a leak at last."

The other two ignored the crack. Blake inquired, "You are primarily an ichthyologist, aren't you?"

"Yes."

"How did you get started along this line?"

"I don't know. Curiosity, I suppose. My boisterous young friend here would tell you that ichthyology is derived from 'icky.'"

Blake turned to Eisenberg. "But aren't you an ichthyologist?"

"Hell, no! I'm an oceanographer specializing in ecology."

"He's quibbling," observed Graves. "Tell Captain Blake about Cleo and Pat."

Eisenberg looked embarrassed. "They're damned nice pets," he said defensively.

Blake looked puzzled; Graves explained. "He

kids me, but *his* secret shame is a pair of goldfish. Goldfish! You'll find 'em in the washbasin in his stateroom this minute."

"Scientific interest?" Blake inquired with a dead pan.

"Oh, no! He thinks they are devoted to him."

"They're damned nice pets," Eisenberg insisted.

"They don't bark, they don't scratch, they don't make messes. And Cleo does so have expression!"

In spite of his initial resistance to their plans Blake co-operated actively in trying to find a dodge whereby the proposed experiment could be performed without endangering naval personnel or matériel. He liked these two; he understood their curious mixture of selfless recklessness and extreme caution; it matched his own—it was professionalism, as distinguished from economic motivation.

He offered the services of his master diver, an elderly commissioned warrant officer, and his technical crew in checking their gear. "You know," he added, "there is some reason to believe that your bathysphere could make the round trip, aside from the proposition that what goes up must come down. You know of the *VJ-14*?"

"Was that the naval plane lost in the early investigation?"

"Yes." He buzzed for his orderly. "Have my writer bring up the jacket on the *VJ-14*," he directed.

Attempts to reconnoiter the strange "permanent" cloud and its incredible waterspouts had been made by air soon after its discovery. Little was learned. A plane would penetrate the cloud. Its ignition would fail; out it would glide, unharmed, whereupon the engines would fire again. Back into the cloud—engine failure. The vertical reach of the cloud was greater than the ceiling of any plane.

"The *VJ-14*," Blake stated, referring occasionally to the file jacket which had been fetched, "made an air reconnaissance of the Pillars themselves on 12 May, attended by the U. S. S. *Pelican*. Besides the pilot and radioman she carried a cinematographer and a chief aerographer. M-m-m—only the last two entries seem to be pertinent: 'Changing course. Will fly between the Pillars—14,' and '0913—Ship does not respond to controls—14.' Telescopic observation from the *Pelican* shows that she made a tight upward spiral around the Kanaka Pillar, about one and a half turns, and was sucked into the column itself. Nothing was seen to fall.

"Incidentally the pilot, Lieutenant—m-m-m-m, yes—Mattson—Lieutenant Mattson was exonerated posthumously by the court of inquiry. Oh, yes, here's the point pertinent to our question: From the log of the *Pelican*: '1709—Picked up wreckage identified as part of *VJ-14*. See addi-

tional sheet for itemized description.' We needn't bother with that. Point is, they picked it up four miles from the base of the Wahini Pillar on the side away from the Kanaka. The inference is obvious and your scheme might work. Not that you'd live through it."

"I'll chance it," Eisenberg stated.

"Mm-mm—yes. But I was going to suggest we send up a dead load, say a crate of eggs packed into a hogshead." The buzzer from the bridge sounded; Captain Blake raised his voice toward the brass funnel of a voice tube in the overhead. "Yes?"

"Eight o'clock, captain. Eight o'clock lights and galley fires out; prisoners secured."

"Thank you, sir." Blake stood up. "We can get together on the details in the morning."

A fifty-foot motor launch bobbed listlessly astern the *Mahan*. A nine-inch coir line joined it to its mother ship; bound to it at fathom intervals was a telephone line ending in a pair of headphones worn by a signalman seated in the stern sheets of the launch. A pair of flags and a spyglass lay on the thwart beside him; his blouse had crawled up, exposing part of the lurid cover of a copy of *Dynamic Tales*, smuggled along as a precaution against boredom.

Already in the boat were the coxswain, the engine man, the boat officer, Graves and Eisenberg. With them, forward in the boat, was a breaker of water rations, two fifty-gallon drums of gasoline—and a hogshead. It contained not only a carefully packed crate of eggs but also a jury-rigged smoke-signal device, armed three ways—delayed action set for eight, nine and ten hours; radio relay triggered from the ship; and simple salt-water penetration to complete an electrical circuit. The torpedo gunner in charge of diving hoped that one of them might work and thereby aid in locating the hogshead. He was busy trying to devise more nearly foolproof gear for the bathysphere.

The boat officer signaled ready to the bridge. A megaphoned bellow responded, "Pay her out handsomely!" The boat drifted slowly away from the ship and directly toward the Kanaka Pillar, three miles away.

The Kanaka Pillar loomed above them, still nearly a mile away but loweringly impressive nevertheless. The place where it disappeared in cloud seemed almost overhead, falling toward them. Its five-hundred-foot-thick trunk gleamed purplish-black, more like polished steel than water.

"Try your engine again, coxswain.

"Aye, aye, sir!" The engine coughed, took hold; the engine man eased in the clutch, the screw bit in, and the boat surged forward, taking the

strain off the towline. "Slack line, sir."

"Stop your engine." The boat officer turned to his passengers. "What's the trouble, Mr. Eisenberg? Cold feet?"

"No, dammit—seasick. I *hate* a small boat."

"Oh, that's too bad. I'll see if we haven't got a pickle in that chow up forward."

"Thanks, but pickles don't help me. Never mind, I can stand it."

The boat officer shrugged, turned and let his eye travel up the dizzy length of the column. He whistled, something which he had done every time he had looked at it. Eisenberg, made nervous by his nausea, was beginning to find it cause for homicide. "*Whew!* You really intend to try to go up that thing, Mr. Eisenberg?"

"I do!"

The boat officer looked startled at the tone, laughed uneasily, and added, "Well, you'll be worse than seasick, if you ask me."

Nobody had. Graves knew his friend's temperament; he made conversation for the next few minutes.

"Try your engine, coxswain." The petty officer acknowledged, and reported back quickly:

"Starter doesn't work, sir."

"Help the engine man get a line on the flywheel. I'll take the tiller."

The two men cranked the engine over easily, but got no answering cough. "Prime it!" Still no results.

The boat officer abandoned the useless tiller and jumped down into the engine space to lend his muscle to heaving on the cranking line. Over his shoulder he ordered the signalman to notify the ship.

"Launch 3, calling bridge. Launch 3, calling bridge. Bridge—reply! Testing—testing." The signalman slipped a phone off one ear. "Phone's dead, sir."

"Get busy with your flags. Tell 'em to haul us in!" The officer wiped sweat from his face and straightened up. He glanced nervously at the current *slap-slapping* against the boat's side.

Graves touched his arm. "How about the barrel?"

"Put it over the side if you like. I'm busy. Can't you raise them, Sears?"

"I'm trying, sir."

"Come on, Bill," Graves said to Eisenberg. The two of them slipped forward in the boat, threading their way past the engine on the side away from the three men sweating over the flywheel. Graves cut the hogshead loose from its lashings, then the two attempted to get a purchase on the awkward, unhandy object. It and its light load weighed less than two hundred pounds, but it was hard to manage, especially on the uncertain footing of heaving floorboards.

They wrestled it outboard somehow, with one



smashed finger for Eisenberg, a badly banged shin for Graves. It splashed heavily, drenching them with sticky salt water, and bobbed astern, carried rapidly toward the Kanaka Pillar by the current which fed it.

"Ship answers, sir!"

"Good! Tell them to haul us in—carefully." The boat officer jumped out of the engine space and ran forward, where he checked again the sureness with which the towline was fastened.

Graves tapped him on the shoulder. "Can't we stay here until we see the barrel enter the column?"

"No! Right now you had better pray that that line holds, instead of worrying about the barrel—or we go up the column, too. Sears, has the ship acknowledged?"

"Just now, sir."

"Why a coir line, Mr. Parker?" Eisenberg inquired, his nausea forgotten in the excitement.

"I'd rather depend on steel, or even good stout Manila."

"Because coir floats, and the others don't," the officer answered snappishly. "Two miles of line would drag us to the bottom. Sears! Tell them to ease the strain. We're shipping water."

"Aye, aye, sir!"

The hogshead took less than four minutes to reach the column, enter it, a fact which Graves ascertained by borrowing the signalman's glass to follow it on the last leg of its trip—which action won him a dirty look from the nervous boat officer. Some minutes later, when the boat was about five hundred yards farther from the Pillar than it had been at nearest approach, the telephone came suddenly to life. The starter of the engine was tested immediately; the engine roared into action.

The trip back was made with engine running to take the strain off the towline—at half speed

and with some maneuvering, in order to avoid fouling the screw with the slack bight of the line.

The smoke signal worked—one circuit or another. The plume of smoke was sighted two miles south of the Wahini Pillar, elapsed time from the moment the vessel had entered the Kanaka column just over eight hours.

Bill Eisenberg climbed into the saddle of the exerciser in which he was to receive antitoxins treatment—thirty minutes of hard work to stir up his circulation while breathing an atmosphere of helium and oxygen, at the end of which time the nitrogen normally dissolved in his blood stream would be largely replaced by helium. The exerciser itself was simply an old bicycle mounted on a stationary platform. Blake looked it over. "You needn't have bothered to bring this," he remarked. "We've a better one aboard. Standard practice for diving operations these days."

"We didn't know that," Graves answered. "Anyhow, this one will do. All set, Bill?"

"I guess so." He glanced over his shoulder to where the steel bulk of the bathysphere lay, uncrated, checked and equipped, ready to be swung outboard by the boat crane. "Got the gasket-sealing compound?"

"Sure. The Iron Maiden is all right. The gunner and I will seal you in. Here's your mask."

Eisenberg accepted the inhaling mask, started to strap it on, checked himself. Graves noticed the look on his face. "What's the trouble, son?"

"Doc . . . uh—"

"Yes?"

"I say—you'll look out for Cleo and Pat, won't you?"

"Why, sure. But they won't need anything in the length of time you'll be gone."

"Um-m-m, no, I suppose not. But you'll look out for 'em?"

"Sure."

"O. K." Eisenberg slipped the inhaler over his face, waved his hand to the gunner waiting by the gas bottles. The gunner eased open the cut-off valves, the gas lines hissed, and Eisenberg began to pedal like a six-day racer.

With thirty minutes to kill, Blake invited Graves to go forward with him for a smoke and a stroll on the fo'c's'le. They had completed about twenty turns when Blake paused by the wildcat, took his cigar from his mouth and remarked, "Do you know, I believe he has a good chance of completing the trip."

"So? I'm glad to hear that."

"Yes, I do, really. The success of the trial with the dead load convinced me. And whether the smoke gear works or not, if that globe comes back down the Wahini Pillar, I'll find it."

"I know you will. It was a good idea of yours, to paint it yellow."

"Help us to spot it, all right. I don't think he'll learn anything, however. He won't see a thing through those ports but blue water, from the time he enters the column to the time we pick him up."

"Perhaps so."

"What else could he see?"

"I don't know. Whatever it is that made those Pillars, perhaps."

Blake dumped the ashes from his cigar carefully over the rail before replying. "Doctor, I don't understand you. To my mind, those Pillars are a natural, even though strange, phenomenon."

"And to me it's equally obvious that they are not 'natural.' They exhibit intelligent interference with the ordinary processes of nature as clearly as if they had a sign saying so hung on them."

"I don't see how you can say that. Obviously, they are not man-made."

"No."

"Then who did make them—if they were made?"

"I don't know."

Blake started to speak, shrugged, and held his tongue. They resumed their stroll. Graves turned aside to chuck his cigarette overboard, glancing outboard as he did so.

He stopped, stared, then called out: "Captain Blake!"

"Eh?" The captain turned and looked where Graves pointed. "Great God! Fireballs!"

"That's what I thought."

"They're some distance away," Blake observed, more to himself than to Graves. He turned decisively. "Bridge!" he shouted. "Bridge! Bridge ahoy!"

"Bridge, aye, aye!"

"Mr. Weems—pass the word: 'All hands, below decks.' Dog down all ports. Close all hatches. And close up the bridge itself! Sound the general alarm."

"Aye, aye, sir!"

"Move!" Turning to Graves, he added, "Come inside." Graves followed him; the captain stopped to dog down the door by which they entered, himself. Blake pounded up the inner ladders to the bridge, Graves in his train. The ship was filled with whine of the bos'n pipe, the raucous voice of the loud-speaker, the clomp of hurrying feet, and the monotonous, menacing *cling-cling-cling!* of the general alarm.

The watch on the bridge were still struggling with the last of the heavy glass shutters of the bridge when the captain burst into their midst. "I'll take it, Mr. Weems," he snapped. In one continuous motion he moved from one side of the bridge to the other, letting his eye sweep the port side aft, the fo'c's'le, the starboard side aft, and



finally rest on the fireballs—distinctly nearer and heading straight for the ship. He cursed. "Your friend did not get the news," he said to Graves. He grasped the crank which could open or close the after starboard shutter of the bridge.

Graves looked past his shoulder, saw what he meant—the afterdeck was empty, save for one lonely figure pedaling away on a stationary bicycle. The LaGrange fireballs were closing in.

The shutter stuck, jammed tight, would not open. Blake stopped trying, swung quickly to the loud-speaker control panel, and cut in the whole board without bothering to select the proper circuit. "Eisenberg! *Get below!*"

Eisenberg must have heard his name called, for he turned his head and looked over his shoulder—Graves saw distinctly—just as the fireball reached him. It passed on, and the saddle of the exerciser was empty.

The exerciser was undamaged, they found, when they were able to examine it. The rubber hose to the inhaler mask had been cut smoothly. There was no blood, no marks. Bill Eisenberg was simply gone.

"I'm going up."

"You are in no physical shape to do so, doctor."

"You are in no way responsible, Captain Blake."

"I know that. You may go if you like—after we have searched for your friend's body."

"Search be damned! I'm going up to look for him."

"Huh? Eh? How's that?"

"If you are right, he's dead, and there is no point in searching for his body. If I'm right, there is just an outside chance of finding him—up there!" He pointed toward the cloud cap of the Pillars.

Blake looked him over slowly, then turned to the master diver. "Mr. Hargreave, find an inhaler mask for Dr. Graves."

They gave him thirty minutes of conditioning against the caisson disease while Blake looked on with expressionless silence. The ship's company, bluejackets and officers alike, stood back and kept quiet; they walked on eggs when the Old Man had that look.

Exercise completed, the diver crew dressed Graves rapidly and strapped him into the bathysphere with dispatch, in order not to expose him too long to the nitrogen in the air. Just before the escape port was dogged down Graves spoke up. "Captain Blake."

"Yes, doctor?"

"Bill's goldfish—will you look out for them?"

"Certainly, doctor."

"Thanks."

"Not at all. Are you ready?"

"Ready."

Blake stepped forward, stuck an arm through

the port of the sphere and shook hands with Graves. "Good luck." He withdrew his arm. "Seal it up."

They lowered it over the side; two motor launches nosed it half a mile in the direction of the Kanaka Pillar where the current was strong enough to carry it along. There they left it and bucked the current back to the ship, were hoisted in.

Blake followed it with his glasses from the bridge. It drifted slowly at first, then with increased speed as it approached the base of the column. It whipped into rapid motion the last few hundred yards; Blake saw a flash of yellow just above the water line, then nothing more.

Eight hours—no plume of smoke. Nine hours, ten hours, nothing. After twenty-four hours of steady patrol in the vicinity of the Wahini Pillar, Blake radioed the Bureau.

Four days of vigilance—Blake knew that the bathysphere's passenger must be dead; whether by suffocation, drowning, implosion, or other means was not important. He so reported and received orders to proceed on duty assigned. The ship's company was called to quarters; Captain Blake read the service for the dead aloud in a harsh voice, dropped over the side some rather wilted hibiscus blooms—all that his steward could produce at the time—and went to the bridge to set his course for Pearl Harbor.

On the way to the bridge he stopped for a moment at his cabin and called to his steward: "You'll find some goldfish in the stateroom occupied by Mr. Eisenberg. Find an appropriate container and place them in my cabin."

"Yes, suh, cap'n."

When Bill Eisenberg came to his senses he was in a Place.

Sorry, but no other description is suitable; it lacked features. Oh, not entirely, of course—it was not dark where he was, nor was it in a state of vacuum, nor was it cold, nor was it too small for comfort. But it did lack features to such a remarkable extent that he had difficulty in estimating the size of the place. Consider—stereo vision, by which we estimate the size of things *directly*, does not work beyond twenty feet or so. At greater distances we depend on previous knowledge of the true size of familiar objects, usually making our estimates subconsciously—a man *so high* is about *that far* away, and vice versa.

But the Place contained no familiar objects. The ceiling was a considerable distance over his head, too far to touch by jumping. The floor curved up to join the ceiling and thus prevented further lateral progress of more than a dozen paces or so. He would become aware of the obstacle by losing his balance. (He had no reference lines

by which to judge the vertical; furthermore, his sense of innate balance was affected by the mistreatment his inner ears had undergone through years of diving. It was easier to sit than to walk, nor was there any reason to walk, after the first futile attempt at exploration.)

When he first woke up he stretched and opened his eyes, looked around. The lack of detail confused him. It was as if he were on the inside of a giant eggshell, illuminated from without by a soft, mellow, slightly amber light. The formless vagueness bothered him; he closed his eyes, shook his head, and opened them again—no better.

He was beginning to remember his last experience before losing consciousness—the fireball swooping down, his frenzied, useless attempt to duck, the "Hold your hats, boys!" thought that flashed through his mind in the long-drawn-out split second before contact. His orderly mind began to look for explanations. Knocked cold, he thought, and my optic nerve paralyzed. Wonder if I'm blind for good.

Anyhow, they ought not to leave him alone like this in his present helpless condition. "Doc!" he shouted. "Doc Graves!"

No answer, no echo—he became aware that there was no sound, save for his own voice, none of the random little sounds that fill completely the normal "dead" silence. This place was as silent as the inside of a sack of flour. Were his ears shot, too?

No, he had heard his own voice. At that moment he realized that he was looking at his own hands. Why, there was nothing wrong with his eyes—he could see them plainly!

And the rest of himself, too. He was naked.

It might have been several hours later, it might have been moments, when he reached the conclusion that he was dead. It was the only hypothesis which seemed to cover the facts. A dogmatic agnostic by faith, he had expected no survival after death; he had expected to go out like a light, with a sudden termination of consciousness. However, he had been subjected to a charge of static electricity more than sufficient to kill a man; when he regained awareness, he found himself without all the usual experience which makes up living. Therefore—he was dead. Q. E. D.

To be sure, he seemed to have a body, but he was acquainted with the subjective-objective paradox. He still had memory, the strongest pattern in one's memory is body awareness. This was not his body, but his detailed sensation memory of it. So he reasoned. Probably, he thought, his dream-body will slough away as my memory of the object-body fades.

There was nothing to do, nothing to experience, nothing to distract his mind. He fell asleep at last, thinking that, if this were death, it was damned dull!

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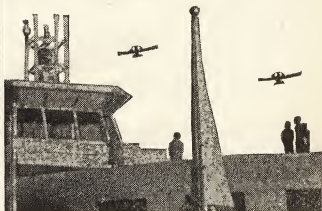
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He awoke refreshed, but quite hungry and extremely thirsty. The matter of dead, or not-dead, no longer concerned him; he was interested in neither theology nor metaphysics. He was hungry.

Furthermore, he experienced on awakening a phenomenon which destroyed most of the basis for his intellectual belief in his own death—it had never reached the stage of emotional conviction. Present there with him in the Place he found material objects other than himself, objects which could be seen and touched.

And eaten.

Which last was not immediately evident, for they did not look like food. There were two sorts. The first was an amorphous lump of nothing in particular, resembling a grayish cheese in appearance, slightly greasy to the touch, and not appetizing. The second sort was a group of objects of uniform and delightful appearance. They were spheres, a couple of dozen; each one seemed to Bill Eisenberg to be a duplicate of a crystal ball he had once purchased—true Brazilian rock crystal the perfect beauty of which he had not been able to resist; he had bought it and smuggled it home to gloat over in private.

The little spheres were like that in appearance. He touched one. It was smooth as crystal and had the same chaste coolness, but it was soft as jelly. It quivered like jelly, causing the lights within it to dance delightfully, before resuming its perfect roundness.

Pleasant as they were, they did not look like food, whereas the cheesy, soapy lump might be. He broke off a small piece, sniffed it, and tasted it tentatively. It was sour, nauseating, unpleasant. He spat it out, made a wry face, and wished heartily that he could brush his teeth. If that was food, he would have to be much hungrier—

He turned his attention back to the delightful little spheres of crystallike jelly. He balanced them in his palms, savoring their soft, smooth touch. In the heart of each he saw his own reflection, imaged in miniature, made elfin and graceful. He became aware almost for the first time of the serene beauty of the human figure, almost any human figure, when viewed as a composition and not as a mass of colloidal detail.

But thirst became more pressing than narcissist admiration. It occurred to him that the smooth, cool spheres, if held in the mouth, might promote salivation, as pebbles will. He tried it; the sphere he selected struck against his lower teeth as he placed it in his mouth, and his lips and chin were suddenly wet, while drops trickled down his chest. The spheres were water, nothing but water, no cellophane skin, no container of any sort. Water had been delivered to him, neatly packaged, by some esoteric trick of surface tension.

He tried another, handling it more carefully to insure that it was not pricked by his teeth until

he had it in his mouth. It worked; his mouth was filled with cool, pure water—too quickly; he choked. But he had caught on to the trick; he drank four of the spheres.

His thirst satisfied, he became interested in the strange trick whereby water became its own container. The spheres were tough; he could not squeeze them into breaking down, nor did smashing them hard against the floor disturb their precarious balance. They bounced like golf balls and came up for more. He managed to pinch the surface of one between thumb and fingernail. It broke down at once, and the water trickled between his fingers—water alone, no skin nor foreign substance. It seemed that a cut alone could disturb the balance of tensions; even wetting had no effect, for he could hold one carefully in his mouth, remove it, and dry it off on his own skin.

He decided that, since his supply was limited, and no more water was in prospect, it would be wise to conserve what he had and experiment no further.

The relief of thirst increased the demands of hunger. He turned his attention again to the other substance and found that he could force himself to chew and swallow. It might not be food, it might even be poison, but it filled his stomach and stayed the pangs. He even felt well fed, once he had cleared out the taste with another sphere of water.

After eating he rearranged his thoughts. He was not dead, or, if he were, the difference between living and being dead was imperceptible, verbal. O. K., he was alive. But he was shut up alone. Somebody knew where he was and was aware of him, for he had been supplied with food and drink—mysteriously but cleverly. *Ergo*—he was a prisoner, a word which implies a warden.

Whose prisoner? He had been struck by a LaGrange fireball and had awakened in his cell. It looked, he was forced to admit, as if Doc Graves had been right; the fireballs were intelligently controlled. Furthermore, the person or persons behind them had novel ideas as to how to care for prisoners as well as strange ways of capturing them.

Eisenberg was a brave man, as brave as the ordinary run of the race from which he sprang—a race as foolhardy as Pekingese dogs. He had the high degree of courage so common in the human race, a race capable of conceiving death, yet able to face its probability daily, on the highway, on the obstetrics table, on the battlefield, in the air, in the subway—and to face lightheartedly the certainty of death in the end.

Eisenberg was apprehensive, but not panic-stricken. His situation was decidedly interesting; he was no longer bored. If he were a prisoner, it seemed likely that his captor would come

to investigate him presently, perhaps to question him, perhaps to attempt to use him in some fashion. The fact that he had been saved and not killed implied some sort of plans for his future. Very well, he would concentrate on meeting whatever exigency might come with a calm and resourceful mind. In the meantime, there was nothing he could do toward freeing himself; he had satisfied himself of that. This was a prison which would baffle Houdini—smooth continuous walls, no way to get a purchase.

He had thought once that he had a clue to escape; the cell had sanitary arrangements of some sort, for that which his body rejected went elsewhere. But he got no further with that lead; the cage was self-cleaning—and that was that. He could not tell how it was done. It baffled him.

Presently he slept again.

When he awoke, one element only was changed—the food and water had been replenished. The “day” passed without incident, save for his own busy and fruitless thoughts.

And the next “day.” And the next.

He determined to stay awake long enough to find out how food and water were placed in his cell. He made a colossal effort to do so, using drastic measures to stimulate his body into consciousness. He bit his lips, he bit his tongue. He nipped the lobes of his ears viciously with his nails. He concentrated on difficult mental feats.

Presently he dozed off; when he awoke, the food and water had been replenished.

The waking periods were followed by sleep, renewed hunger and thirst, the satisfying of same, and more sleep. It was after the sixth or seventh sleep that he decided that some sort of a calendar was necessary to his mental health. He had no means of measuring time except by his sleeps; he arbitrarily designated them as days. He had no means of keeping records, save his own body. He made that do. A thumbnail shred, torn off, made a rough tattooing needle. Continued scratching of the same area on his thigh produced a red welt which persisted for a day or two, and could be renewed. Seven welts made a week. The progression of such welts along ten fingers and ten toes gave him the means to measure twenty weeks—which was a much longer period than he anticipated any need to measure.

He had tallied the second set of seven thigh welts on the ring finger of his left hand when the next event occurred to disturb his solitude. When he awoke from the sleep following said tally, he became suddenly and overwhelmingly aware that he was not alone!

There was a human figure sleeping beside him. When he had convinced himself that he was truly wide awake—his dreams were thoroughly populated—he grasped the figure by the shoulder and



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# Detective Story

ON SALE AT ALL NEWSSTANDS





shook it. "Doc!" he yelled. "Doc! Wake up!"

Graves opened his eyes, focused them, sat up, and put out his hand. "Hie, Bill," he remarked.

"I'm damned glad to see you."

"Doc!" He pounded the older man on the back.

"Doc! For Criminy sake! You don't know how glad I am to see you."

"I can guess."

"Look, Doc—where have you been? How did you get here? Did the fireballs snag you, too?"

"One thing at a time, son. Let's have breakfast." There was a double ration of food and water on the "floor" near them. Graves picked up a sphere, nicked it expertly, and drank it without losing a drop. Eisenberg watched him knowingly.

"You've been here for some time."

"That's right."

"Did the fireballs get you the same time they got me?"

"No." He reached for the food. "I came up the Kanaka Pillar."

"What!"

"That's right. Matter of fact, I was looking for you."

"The hell you say!"

"But I do say. It looks as if my wild hypothesis was right; the Pillars and the fireballs are different manifestations of the same cause—X!"

It seemed almost possible to hear the wheels whirl in Eisenberg's head. "But, Doc . . . look here, Doc, that means your whole hypothesis was correct. Somebody *did* the whole thing. Somebody has us locked up here now."

"That's right." He munched slowly. He seemed tired, older and thinner than the way Eisenberg remembered him. "Evidence of intelligent control. Always was. No other explanation."

"But *who*?"

"Ah!"

"Some foreign power? Are we up against something utterly new in the way of an attack?"

"Humph! Do you think the Japs, for instance, would bother to serve us water like *this*?" He held up one of the dainty little spheres.

"Who, then?"

"I wouldn't know. Call 'em Martians—that's a convenient way to think of them."

"Why Martians?"

"No reason. I said that was a convenient way to think of them."

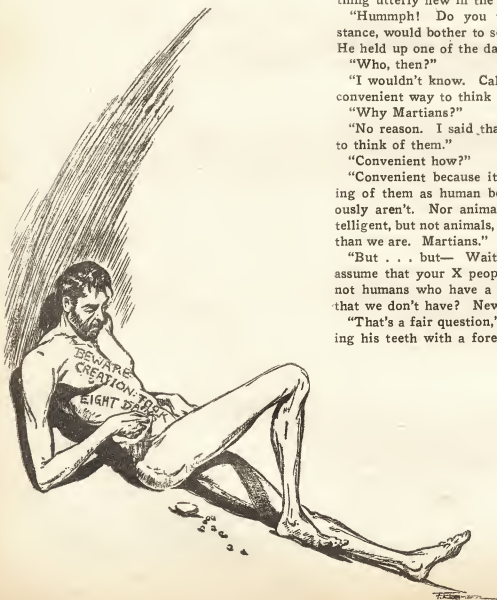
"Convenient how?"

"Convenient because it keeps you from thinking of them as human beings—which they obviously aren't. Nor animals. Something very intelligent, but not animals, because they are smarter than we are. Martians."

"But . . . but— Wait a minute. Why do you assume that your X people aren't human? Why not humans who have a lot of stuff on the ball that we don't have? New scientific advances?"

"That's a fair question," Graves answered, picking his teeth with a forefinger. "I'll give you a

fair answer. Because in the present state of world peace and good feeling we know pretty near where all the best minds are and what they are doing. Advances like these couldn't be hidden and would be a long time in developing. X indicates evidence of half a dozen



different lines of development that are clear beyond our ken and which would require years of work by dozens of researchers, to say the very least. *Ipsa facto*, nonhuman science.

"Of course," he continued, "if you want to postulate a mad scientist and a secret laboratory, I can't argue with you. But I'm not writing Sunday supplements."

Bill Eisenberg kept very quiet for some time, while he considered what Graves said in the light of his own experience. "You're right, Doc," he finally admitted. "Shucks—you're usually right when we have an argument. It has to be Martians. Oh, I don't mean inhabitants of Mars; I mean some form of intelligent life from outside this planet."

"Maybe."

"But you just said so!"

"No, I said it was a convenient way to look at it."

"But it has to be, by elimination."

"Elimination is a tricky line of reasoning."

"What else could it be?"

"Mm-m-m. I'm not prepared to say just what I do think—yet. But there are stronger reasons than we have mentioned for concluding that we are up against nonhumans. Psychological reasons."

"What sort?"

"X doesn't treat prisoners in any fashion that arises out of human behavior patterns. Think it over."

They had a lot to talk about; much more than X, even though X was a subject they were bound to return to. Graves gave Bill a simple bald account of how he happened to go up the Pillar—an account which Bill found very moving for what was left out, rather than told. He felt suddenly very humble and unworthy as he looked at his elderly, frail friend. "Doc, you don't look well."

"I'll do."

"That trip up the Pillar was hard on you. You shouldn't have tried it."

Graves shrugged. "I made out all right." But he had not, and Bill could see that he had not. The old man was "poorly."

They slept and they ate and they talked and they slept again. The routine that Eisenberg had grown used to alone continued, save with company. But Graves grew no stronger.

"Doc, it's up to us to do something about it."

"About what?"

"The whole situation. This thing that has happened to us is an intolerable menace to the whole human race. We don't know what may have happened down below—"

"Why do you say 'down below'?"

"Yes, you came up the Pillar."

"Why, true—but I don't know when or how I was taken out of the bathysphere, nor where they may have taken me. But go ahead. Let's have your idea."

"Well, but— O. K.—we don't know what may have happened to the rest of the human race. The fireballs may be picking them off one at a time, with no chance to fight back and no way of guessing what has been going on. We have some idea of the answer. It's up to us to escape and warn them. There may be some way of fighting back. It's our duty; the whole future of the human race may depend on it."

Graves was silent so long after Bill had finished his tocsin that Bill began to feel embarrassed, a bit foolish. But when he finally spoke it was to agree. "I think you are right, Bill. I think it quite possible that you are right. Not necessarily, but distinctly possible. And that possibility does place an obligation on us to all mankind. I've known it. I knew it before we got into this mess, but I did not have enough data to justify shouting, 'Wolf!'"

"The question is," he went on, "how can we give such a warning—now?"

"We've got to escape!"

"Ah!"

"There *must* be some way."

"Can you suggest one?"

"Maybe. We haven't been able to find any way in or out of this place, but there must be a way—has to be; we were brought in. Furthermore, our rations are put inside every day—somehow. I tried once to stay awake long enough to see how it was done, but I fell asleep—"

"So did I."

"Uh-huh. I'm not surprised. But there are two of us now; we could take turns, watch on and watch off, until something happened."

Graves nodded. "It's worth trying."

Since they had no way of measuring the watches, each kept the vigil until sleepiness became intolerable, then awakened the other. But nothing happened. Their food ran out, was not replaced. They conserved their water balls with care, were finally reduced to one, which was not drunk because each insisted on being noble about it—the other must drink it! But still no manifestation of any sort from their unseen captors.

After an unmeasured and unestimated length of time—but certainly long, almost intolerably long—at a time when Eisenberg was in a light, troubled sleep, he was suddenly awakened by a touch and the sound of his name. He sat up, blinking, disoriented. "Who? What? Wha'sa matter?"

"I must have dozed off," Graves said miserably. "I'm sorry, Bill." Eisenberg looked where Graves pointed. Their food and water had been renewed.

Eisenberg did not suggest a renewal of the experiment. In the first place, it seemed evident that their keepers did not intend for them to learn the combination to their cell and were quite intelligent enough to outmaneuver their necessarily feeble attempts. In the second place, Graves was an obviously sick man; Eisenberg did not have the heart to suggest another long, grueling, half-starved vigil.

But, lacking knowledge of the combination, it appeared impossible to break jail. A naked man is a particularly helpless creature; lacking materials wherewith to fashion tools, he can do little. Eisenberg would have swapped his chances for eternal bliss for a diamond drill, an acetylene torch, or even a rusty, secondhand chisel. Without tools of some sort it was impressed on him that he stood about as much chance of breaking out of his cage as his goldfish, Cleo and Patra, had of chewing their way out of a glass bowl.

"Doc."

"Yes, son."

"We've tackled this the wrong way. We know that X is intelligent; instead of trying to escape, we should be trying to establish communication."

"How?"

"I don't know. But there must be *some* way."

But if there was, he could never conjure it up. Even if he assumed that his captors could see and hear him, how was he to convey intelligence to them by word or gesture? Was it theoretically possible for any nonhuman being, no matter how intelligent, to find a pattern of meaning in human speech symbols, if he encountered them without context, without background, without pictures, without *pointing*? It is certainly true that the human race, working under much more favorable circumstances, has failed almost utterly to learn the languages of the other races of animals.

What should he do to attract their attention, stimulate their interest? Recite the "Gettysburg Address"? Or the multiplication table? Or, if he used gestures, would deaf-and-dumb language mean any more, or any less, to his captors than the sailor's hornpipe?

"Doc."

"What is it, Bill?" Graves was sinking; he rarely initiated a conversation these "days."

"Why are we here? I've had it in the back of my mind that *eventually* they would take us out and do something with us. Try to question us, maybe. But it doesn't look like they meant to."

"No, it doesn't."

"Then why are we here? Why do they take care of us?"

Graves paused quite a long time before answering: "I think that they are expecting us to reproduce."

"What!"

Graves shrugged.

"But that's ridiculous."

"Surely. But would they know it?"

"But they are intelligent."

Graves chuckled, the first time he had done so in many sleeps. "Do you know Roland Young's little verse about the flea:

"A funny creature is the Flea  
You cannot tell the She from He.  
But He can tell—and so can She."

"After all, the visible differences between men and women are quite superficial and almost negligible—except to men and women!"

Eisenberg found the suggestion repugnant, almost revolting; he struggled against it. "But look, Doc—even a little study would show them that the human race is divided up into sexes. After all, we aren't the first specimens they've studied."

"Maybe they don't study us."

"Huh?"

"Maybe we are just—pets."

Pets! Bill Eisenberg's morale had stood up well in the face of danger and uncertainty. This attack on it was more subtle. Pets! He had thought of Graves and himself as prisoners of war, or, possibly, objects of scientific research. But pets!

"I know how you feel," Graves went on, watching his face. "It's . . . it's *humiliating* from an anthropocentric viewpoint. But I think it may be true. I may as well tell you my own private theory as to the possible nature of X, and the relation of X to the human race. I haven't up to now, as it is almost sheer conjecture, based on very little data. But it does cover the known facts."

"I conceive of the X creatures as being just barely aware of the existence of men, unconcerned by them, and almost completely uninterested in them."

"But they hunt us!"

"Maybe. Or maybe they just pick us up occasionally by accident. A lot of men have dreamed about an impingement of nonhuman intelligences on the human race. Almost without exception the dream has taken one of two forms, invasion and war, or exploration and mutual social intercourse. Both concepts postulate that nonhumans are enough like us either to fight with us or talk to us—treat us as equals, one way or the other."

"I don't believe that X is sufficiently interested in human beings to want to enslave them, or even exterminate them. They may not even study us, even when we come under their notice. They may lack the scientific spirit in the sense of having a monkeylike curiosity about everything that moves. For that matter, how thoroughly do we study other life forms? Did you ever ask your goldfish for their views on goldfish poetry or poli-

tics? Does a termite think that a woman's place is in the home? Do beavers prefer blondes or brunettes?"

"You are joking."

"No, I'm not. Maybe the life forms I mentioned don't have such involved ideas. My point is: if they did, or do, we'd never guess it. I don't think X conceives of the human race as intelligent."

Bill chewed this for a while, then added: "Where do you think they came from, Doc? Mars, maybe? Or clear out of the Solar System?"

"Not necessarily. Not even probably. It's my guess that they came from the same place we did—from up out of the slime of this planet."

"Really, Doc—"

"I mean it. And don't give me that funny look. I may be sick, but I'm not balmy. *Creation took eight days!*"

"Huh?"

"I'm using biblical language. 'And God blessed them, and God said unto them, Be fruitful and multiply, and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth.' And so it came to pass. But nobody mentioned the stratosphere."

"Doc—are you sure you feel all right?"

"Dammit—quit trying to psychoanalyze me! I'll drop the allegory. What I mean is: We aren't the latest nor the highest stage in evolution. First the oceans were populated. Then lungfish to amphibian, and so on up, until the continents were populated, and in time, man ruled the surface of the earth—or thought he did. But did evolution stop there? I think not. Consider—from a fish's point of view air is a hard vacuum. From our point of view the upper reaches of the atmosphere, sixty, seventy, maybe a hundred thousand feet up, seem like a vacuum and unfit to sustain life. But it's not vacuum. It's thin, yes, but there is matter there and radiant energy. Why not life, intelligent life, highly evolved as it would have to be—but evolved from the same ancestry as ourselves and fish? We wouldn't see it happen; man hasn't been aware, in a scientific sense, that long. When our granddaddies were swinging in the trees, it had already happened."

Eisenberg took a deep breath. "Just wait a minute, Doc. I'm not disputing the theoretical possibility of your thesis, but it seems to me it is out on direct evidence alone. We've never seen them, had no direct evidence of them. At least, not until lately. And we *should* have seen them."

"Not necessarily. Do ants see men? I doubt it."

"Yes—but, consarn it, a man has better eyes than an ant."

"Better eyes for what? For his own needs.

Suppose the X creatures are too high up, or too tenuous, or too fast-moving for us to notice them. Even a thing as big and as solid and as slow as an airplane can go up high enough to pass out of sight, even on a clear day. If X is tenuous and even semitransparent, we never *would* see them—not even as occultations of stars, or shadows against the moon—though as a matter of fact there have been some very strange stories of just that sort of thing."

Eisenberg got up and stomped up and down. "Do you mean to suggest," he demanded, "that creatures so insubstantial they can float in a soft vacuum built the Pillars?"

"Why not? Try explaining how a half-finished, naked embryo like *homo sapiens* built the Empire State Building."

Bill shook his head. "I don't get it."

"You don't try. Where do you think *this* came from?" Graves held up one of the miraculous little water spheres. "My guess is that life on this planet is split three ways, with almost no intercourse between the three. Ocean culture, land culture, and another—call it stratoculture. Maybe a fourth, down under the crust—but we don't know. We know a little about life under the sea, because we are curious. But how much do they know of us? Do a few dozen bathysphere descents constitute an invasion? A fish that sees our bathysphere might go home and take to his bed with a sick headache, but he wouldn't talk about it, and he wouldn't be believed if he did. If a lot of fish see us and swear out affidavits, along comes a fish-psychologist and explains it as mass hallucination."

"No, it takes something at least as large and solid and permanent as the Pillars to have any effect on orthodox conceptions. Casual visitations have no real effect."

Eisenberg let his thoughts simmer for some time before commenting further. When he did, it was half to himself. "I don't believe it. I won't believe it!"

"Believe what?"

"Your theory. Look, Doc—if you are right, don't you see what it means? We're helpless, we're outclassed."

"I don't think they will bother much with human beings. They haven't, up till now."

"But that isn't it. Don't you see? We've had some dignity as a race. We've striven and accomplished things. Even when we failed, we had the tragic satisfaction of knowing that we were, nevertheless, superior and more able than the other animals. We've had faith in the race—we would accomplish great things yet. But if we are just one of the lower animals ourselves, what does our great work amount to? Me, I couldn't go on pretending to be a 'scientist' if I thought I was just a fish, mucking around in the bottom of



a pool. My work wouldn't *signify* anything."

"Maybe it doesn't."

"No, maybe it doesn't." Eisenberg got up and paced the constricted area of their prison. "Maybe not. But I won't surrender to it. I won't! Maybe you're right. Maybe you're wrong. It doesn't seem to matter very much *where* the X people came from. One way or the other, they are a threat to our own kind. Doc, we've got to get out of here and warn them!"

"How?"

Graves was comatose a large part of the time before he died. Bill maintained an almost continuous watch over him, catching only occasional cat naps. There was little he could do for his friend, even though he did watch over him, but the spirit behind it was comfort to them both.

But he was dozing when Graves called his name. He woke at once, though the sound was a bare whisper. "Yes, Doc?"

"I can't talk much more, son. Thanks for taking care of me."

"Shucks, Doc."

"Don't forget what you're here for. Some day you'll get a break. Be ready for it and don't muff it. People have to be warned."

"I'll do it, Doc. I swear it."

"Good boy." And then, almost inaudibly, "G'night, son."

Eisenberg watched over the body until it was quite cold and had begun to stiffen. Then, exhausted by his long vigil and emotionally drained, he collapsed into a deep sleep. When he woke up the body was gone.

It was hard to maintain his morale, after Graves was gone. It was all very well to resolve to warn the rest of mankind at the first possible chance, but there was the endless monotony to contend with. He had not even the relief from boredom afforded the condemned prisoner—the checking off of limited days. Even his "calendar" was nothing but a counting of his sleeps.

He was not quite sane much of the time, and it was the twice-tragic insanity of intelligence, aware of its own instability. He cycled between periods of elation and periods of extreme depression, in which he would have destroyed himself, had he the means.

During the periods of elation he made great plans for fighting against the X creatures—after he escaped. He was not sure how or when, but, momentarily, he was sure. He would lead the crusade himself; Diesel-motored planes could withstand the dead zone of the Pillars and the cloud; heavy artillery could destroy the dynamic balance of the Pillars. They would harry them and hunt them down; the globe would once again be the kingdom of man, to whom it belonged.

During the bitter periods of relapse he would realize clearly that the puny engineering of mankind, Diesel engines or no, would be of no force against the powers and knowledge of the creatures who built the Pillars, who kidnaped himself and Graves in such a casual and mysterious a fashion. They were outclassed. Could codfish plan a sortie against the city of Boston? Would it matter if the chattering monkeys in Guatemala passed a resolution to destroy the British navy?

They were outclassed. The human race had reached its highest point—the point at which it began to be aware that it was not the highest race, and the knowledge was death to it, one way or the other—the mere knowledge alone, even as the knowledge was now destroying him, Bill Eisenberg, himself. Eisenberg—*homo piscis*. Poor fish!

His overstrained mind conceived a means by which he might possibly warn his fellow beings. He could not escape as long as his surroundings remained unchanged. That was established and he accepted it; he no longer paced his cage. But certain things *did* leave his cage: left-over food, refuse—and Graves' body. If he died, his own body would be removed, he felt sure. Some, at least, of the things which had gone up the Pillars had come down again—he knew that. Was it not likely that the X creatures disposed of any heavy mass for which they had no further use by dumping it down the Wahini Pillar? He convinced himself that it was so.

Very well, his body would be returned to the surface, eventually. How could he use it to give a message to his fellow men, if it were found? He had no writing materials, nothing but his own body.

But the same make-do means which served him as a calendar gave him a way to write a message. He could make welts on his skin with a shred of thumbnail. If the same spot were irritated over and over again, not permitted to heal, scar tissue would form. By such means he was able to create permanent tattooing.

The letters had to be large; he was limited in space to the fore part of his body; involved argument was impossible. He was limited to a fairly simple warning. If he had been quite right in his mind, perhaps he would have been able to devise a more cleverly worded warning—but then he was not.

In time, he had covered his chest and belly with cicatrix tattooing worthy of a bushman chief. He was thin by then and of an unhealthy color; the welts stood out plainly.

His body was found floating in the Pacific, by Portuguese fishermen who could not read the message, but who turned it in to the harbor police of Honolulu. They, in turn, photographed the body, fingerprinted it, and disposed of it. The finger-

prints were checked in Washington, and William Eisenberg, scientist, fellow of many distinguished societies, and high type of *homo sapiens*, was officially dead for the second time, with a new mystery attached to his name.

The cumbersome course of official correspondence unwound itself and the record of his reappearance reached the desk of Captain Blake, at a port in the South Atlantic. Photographs of the body were attached to the record, along with a short official letter telling the captain that, in view of his connection with the case, it was being provided for his information and recommendation.

Captain Blake looked at the photographs for the dozenth time. The message told in scar tissue was plain enough: "BEWARE—CREATION TOOK EIGHT DAYS." But what did it mean?

Of one thing he was sure—Eisenberg had not had those scars on his body when he disappeared from the *Mahan*.

The man had lived for a considerable period after he was grabbed up by the fireball—that was certain. And he had learned something. What? The reference to the first chapter of Genesis did not escape him; it was not such as to be useful.

He turned to his desk and resumed making a draft in painful longhand of his report to the bureau. "—the message in scar tissue adds to the

THE END.

### SUPPRESSED VIOLENCE

A dwarf star is something of a pet item for science-fiction. But the actual appearance of a dwarf sun, close to, is something we don't know any too much about. One general thing is perfectly certain: the white dwarf type represents sheer, raw energy, undiluted atomic violence, leashed and beaten down by opposing forces of unimaginable magnitude great enough to defeat the stupendous fury of even those immense energies! For pure, unadulterated essence of destruction, the condition of the white dwarf suns cannot be surpassed.

A typical white dwarf sun may have the mass of the Sun, with a size smaller than that of Earth. The surface temperature has been driven up and up as the once-huge star shrank till it has reached something on the order of 30,000°—five or six times as hot as the Sun's surface, and radiating nearly 1,300 times as rapidly per unit area. "White" dwarf is a misnomer; it's an ultraviolet dwarf, only our eyes cannot see and our atmosphere will not pass ultraviolet light of that hardness. Nearby, a man's eyes would be seared out of usefulness in seconds, and by radiation he did not even realize was present.

Such stars give no spectrum lines; a spectrum appears only when light passes through a layer of reasonably tenuous gas—something on the order of density of our atmosphere or less. A gas com-

munity, rather than clarifying it. I am now forced to the opinion that the Pillars and the LaGrange fireballs are connected in some way. The patrol around the Pillars should not be relaxed. If new opportunities or methods for investigating the nature of the Pillars should develop, they should be pursued thoroughly. I regret to say that I have nothing of the sort to suggest—"

He got up from his desk and walked to a small aquarium supported by gimbals from the inboard bulkhead, and stirred up the two goldfish therein with a forefinger. Noticing the level of the water, he turned to the pantry door. "Johnson, you've filled this bowl too full again. Pat's trying to jump out again!"

"I'll fix it, captain." The steward came out of the pantry with a small pan. ("Don't know why the Old Man keeps these tarnation fish. He ain't interested in 'em—that's certain.") Aloud he added: "That Pat fish don't want to stay in there, captain. Always trying to jump out. And he don't like me, captain."

"What's that?" Captain Blake's thoughts had already left the fish; he was worrying over the mystery again.

"I say that fish don't like me, captain. Tries to bite my finger every time I clean out the bowl."

"Don't be silly, Johnson."

pressed to high density radiates like a solid metal—a featureless blaze of white light.

They have an atmosphere, as do all stars. Recent work on the Sun has indicated that it, a pretty normal, slightly brighter-than-average star, has an atmosphere hundreds of thousands of miles deep. Some stars have atmospheres billions of miles deep.

A white dwarf has an atmosphere—a boiling, violent, stupendously hot and terrifically compressed stellar atmosphere—*twelve feet deep*. There are no prominences, no sunspots; under the unbearably intense surface gravity of such a sun, no prominence and no irregularity of appreciable size could exist. The human eye could not detect motion in the medium if it existed—gas eddies and waves crushed down by that terrific gravity, answering to forces generated in that dense murky, would snap from formation to formation in thousandths of a second, not in hours.

To human vision, screened to endure the radiation, the whole crushed star would appear as smooth and featureless as a steel ball.

But a steel ball dropped into it would *implode*—simultaneously and instantaneously change to a gas so hot the atoms of iron could not maintain their formation, and collapse inward under pressure so great as to crack the electron shells of the atoms themselves.

# RUNAROUND

By Isaac Asimov

● A robot must react to orders, but must, on the other hand, have sense enough to disobey if the order would destroy it. But that can lead to a most embarrassing sort of situation, when a robot gives its owners a handsome runaround!

Illustrated by Orban

It was one of Gregory Powell's favorite platitudes that nothing was to be gained from excitement; so when Mike Donovan came leaping down the stairs toward him, red hair matted with perspiration, Powell frowned.

"What's wrong?" he said. "Break a fingernail?"

"Yaaaaah," snarled Donovan, feverishly. "What have you been doing in the sublevels all day?" He took a deep breath and blurted out, "Speedy never returned."

Powell's eyes widened momentarily and he stopped on the stairs; then he recovered and resumed his upward steps. He didn't speak until he reached the head of the flight, and then:

"You sent him after the selenium?"

"Yes."

"And how long has he been out?"

"Five hours now."

Silence! This was a devil of a situation. Here they were, on Mercury exactly twelve hours—and already up to the eyebrows in the worst sort of trouble. Mercury had long been the jinx world of the System, but this was drawing it rather strong—even for a jinx.

Powell said, "Start at the beginning, and let's get this straight."

They were in the radio room now—with its subtly antiquated equipment, untouched for the fifty years previous to their arrival. The air of disuse that touched everything about the room—and the entire Station—was infinitely depressing.

Donovan must have felt it. He began: "I tried to locate him by radio, but it was no go. Radio isn't any good on the Mercury Sundside—not past two miles, anyway. That's one of the reasons the First Expedition failed. And we can't put up the ultrawave equipment for weeks yet—"

"Skip all that. What did you get?"

"I located the unorganized body signal in the short wave. It was no good for anything except his position. I kept track of him that way for two hours and plotted the results on the map."

There was a yellowed square of parchment in his hip pocket—a relic of the unsuccessful First Expedition—and he slapped it down on the desk with vicious force, spreading it flat with the palm of his hand. Powell, hands clasped across his chest, watched it at long range.

Donovan's pencil pointed nervously. "The red cross is the selenium pool. You marked it yourself."

"Which one is it?" interrupted Powell. "There were three that MacDougal located for us before he left."

"I sent Speedy to the nearest, naturally. Seventeen miles away. But what difference does that make?" There was tension in his voice. "There are the penciled dots that mark Speedy's position."

And for the first time Powell's artificial aplomb was shaken and his hands shot forward for the map.

"Are you serious? This is impossible."

"There it is," growled Donovan.

The little dots that marked the position formed a rough circle about the red cross of the selenium pool. And Powell's fingers went to his brown mustache, the unfailing signal of anxiety.

Donovan added: "In the two hours I checked on him, he circled that damned pool four times. It seems likely to me that he'll keep that up forever. Do you realize the position we're in?"

Powell looked up shortly, and said nothing. Oh, yes, he realized the position they were in. It worked itself out as simply as a syllogism. The photo-cell banks that alone stood between the full power of Mercury's monstrous sun and themselves were shot to hell. The only thing that could save them was selenium. The only thing that could get the selenium was Speedy. If Speedy didn't come back, no selenium. No selenium, no photo-cell banks. No photo-cell banks—well, death by slow broiling is one of the more unpleasant ways of being done in.



Donovan rubbed his red mop of hair savagely and expressed himself with bitterness. "We'll be the laughingstock of the System, Greg. How can everything have gone so wrong so soon? The great team of Powell and Donovan is sent out to Mercury to report on the advisability of reopening the Sunside Mining Station with modern techniques and robots and we ruin everything the first day. A purely routine job, too. We'll never live it down."

"We won't have to, perhaps," replied Powell,

quietly. "If we don't do something quickly, living anything down—or even just plain living—will be out of the question."

"Don't be stupid! If you feel funny about it, Greg, I don't. It was criminal, sending us out here with only one robot. And it was *your* bright idea that we could handle the photo-bank cells ourselves."

"Now you're being unfair. It was a mutual decision and you know it. All we needed was a kilogram of selenium, a Stillhead Dielectrode



Plate and about three hours time—and there are pools of pure selenium all over Sunside. MacDougal's spectroreflector spotted three for us in five minutes, didn't it? What the devil! We couldn't have waited for next conjunction."

"Well, what are we going to do? Powell, you've got an idea. I know you have, or you wouldn't be so calm. You're no more a hero than I am. Go on, spill it!"

"We can't go after Speedy ourselves, Mike—not on the Sunside. Even the new insosuits aren't good for more than twenty minutes in direct sunlight. But you know the old saying, 'Set a robot to catch a robot.' Look, Mike, maybe things aren't so bad. We've got six robots down in the sublevels, that we may be able to use, if they work. If they work."

There was a glint of sudden hope in Donovan's eyes. "You mean six robots from the First Expedition. Are you sure? They may be subrobotic machines. Fifty years is a long time, you know."

"No, they're robots. I've spent all day with them and I know. They've got positronic brains; primitive, of course." He placed the map in his pocket. "Let's go down."

The robots were on the lowest sublevel—all six of them—surrounded by musty packing cases of uncertain content. They were large, extremely so, and even though they were in a sitting position on the floor, legs straddled out before them, their heads were a good seven feet in the air.

Donovan whistled. "Look at the size of them, will you? The chests must be ten feet around."

"That's because they're supplied with the old McGuffey gears. I've been over the insides—crummiest set you've ever seen."

"Have you powered them yet?"

"No. There wasn't any reason to. I don't think there's anything wrong with them. Even the diaphragm is in reasonable order. They might talk."

He had unscrewed the chest plate of the nearest as he spoke, inserted the two-inch sphere that contained the tiny spark of atomic energy that was a robot's life. There was difficulty in fitting it, but he managed, and then screwed the plate back on again in laborious fashion. The radio controls of more modern models had not been heard of fifty years earlier. And then to the other five.

Donovan said uneasily, "They haven't moved."

"No orders to do so," replied Powell, succinctly. He went back to the first in the line and struck him on the chest. "You! Do you hear me?"

The monster's head bent slowly, and the eyes fixed themselves on Powell. Then, in a harsh, squawking voice—like that of a medieval phonograph, he grated, "Yes, Master!"

Powell grinned humorlessly at Donovan. "Did you get that? The makers of the first robots never did get rid of the Frankenstein idea, so they

built good, healthy slave complexes into the damned machines."

He turned once more to the robot. "Get up!"

The robot towered upward slowly and Donovan's head craned and his puckered lips whistled.

Powell said: "Can you go out upon the surface? In the light?"

There was consideration while the robot's slow brain worked. Then, "Yes, Master."

"Good. Do you know what a mile is?"

Another consideration, and another slow answer. "Yes, Master."

"We will take you up to the surface then, and indicate a direction. You will go about seventeen miles, and somewhere in that general region you will meet another robot, smaller than yourself. You understand so far?"

"Yes, Master."

"You will find this robot and order him to return. If he does not wish to, you are to bring him back by force."

Donovan clutched at Powell's sleeve. "Why not send him for the selenium direct?"

"Because I want Speedy back, nitwit. I want to find out what's wrong with him." And to the robot, "All right, you, follow me."

The robot remained motionless and his voice rumbled: "Pardon, Master, but I cannot. You must mount first." His clumsy arms had come together with a thwack, blunt fingers interlacing.

Powell stared and then pinched at his mustache. "Uh . . . oh!"

Donovan's eyes bulged. "We've got to ride him? Like a horse?"

"I guess that's the idea. I don't know why, though? I can't see— Yes, I do. I told you they didn't trust robots in those days. Evidently, they didn't dare allow them to move about, without a mahout on their shoulders all the time. What do we do now?"

"That's what I've been thinking," muttered Donovan. "We can't go out on the surface, with a robot or without. Oh, for the love of Pete!"—and he snapped his fingers twice. He grew excited. "Give me that map you've got. I haven't studied it for two hours for nothing. This is a Mining Station. What's wrong with using the tunnels?"

The Mining Station was a black circle on the map, and the light dotted lines that were tunnels stretched out about it in spiderweb fashion.

Donovan studied the list of symbols at the bottom of the map. "Look," he said, "the small black dots are openings to the surface, and here's one maybe three miles away from the selenium pool. There's a number here—you'd think they'd write larger—13a. If the robots know their way around here—"

Powell shot the question and received the dull

"Yes, Master," in reply. "Get your insosuit," he said with satisfaction.

It was the first time either had worn the insosuits—which marked one time more than either had expected to upon their arrival the day before—and they tested their limb movements uncomfortably.

The insosuit was far bulkier and far uglier than the regulation spacesuit; but withal considerably lighter, due to the fact that they were entirely nonmetallic in composition. Composed of heat-resistant plastic and chemically treated cork layers, and equipped with a desiccating unit to keep the air bone-dry, the insosuits could withstand the full glare of Mercury's sun for twenty minutes. Five to ten minutes more, as well, without actually killing the occupant.

And still the robot's hands formed the stirrup, nor did he betray the slightest atom of surprise at the grotesque figure into which Powell had been converted.

Powell's radio-harshened voice boomed out: "Are you ready to take us to Exit 13a?"

"Yes, Master."

Good, thought Powell; they're fitted for radio reception. "Mount one of the others, Mike," he said to Donovan.

He placed a foot in the improvised stirrup and swung upward. He found the seat comfortable; there was the humped back of the robot, evidently shaped for the purpose, a shallow groove along each shoulder for the thighs and two elongated "ears" whose purpose now seemed obvious.

Powell seized the ears and twisted the head. His mount turned ponderously. "Lead on Macduff." But he did not feel at all lighthearted.

The gigantic robots moved slowly, with mechanical precision, through the doorway that cleared their heads by a scant foot, so that the two men had to duck hurriedly, along a narrow corridor in which their unhurried footsteps boomed monotonously and into the air lock.

The long, airless tunnel that stretched to a pin point before them brought home forcefully to Powell the exact magnitude of the task accomplished by the First Expedition, with their crude robots and their start-from-scratch necessities. They might have been a failure, but their failure was a good deal better than the usual run of the System's successes.

The robots plodded onward with a pace that never varied and with footsteps that never lengthened.

Powell said: "Notice that these tunnels are blazing with lights and that the temperature is Earth-normal. It's probably been like this all the fifty years that this place has remained empty."

"How's that?"

"Cheap energy; cheapest in the System. Sunpower, you know, and on Mercury's Sunside, sunpower is *something*. That's why the Station was built in the sunlight rather than in the shadow of a mountain. It's really a huge energy converter. The heat is turned into electricity, light, mechanical work and what have you; so that energy is supplied and the Station is cooled in a simultaneous process."

"Look," said Donovan. "This is all very educational, but would you mind changing the subject? It so happens that this conversion of energy that you talk about is carried on by the photo-cell banks mainly—and that is a tender subject with me at the moment."

Powell grunted vaguely, and when Donovan broke the resulting silence, it was to change the subject completely. "Listen, Greg. What the devil's wrong with Speedy, anyway? I can't understand it."

It's not easy to shrug shoulders in an insosuit, but Powell tried it. "I don't know, Mike. You know he's perfectly adapted to a Mercurian environment. Heat doesn't mean anything to him, and he's built for the light gravity and the broken ground. He's foolproof—or, at least, he should be."

Silence fell. This time, silence that lasted.

"Master," said the robot, "we are here."

"Eh?" Powell snapped out of a semidrowse. "Well, get us out of here—out to the surface."

They found themselves in a tiny substation, empty, airless, ruined. Donovan had inspected a jagged hole in the upper reaches of one of the walls by the light of his pocket flash.

"Meteorite, do you suppose?" he had asked.

Powell shrugged. "To hell with that. It doesn't matter. Let's get out."

A towering cliff of a black, basaltic rock cut off the sunlight, and the deep night shadow of an airless world surrounded them. Before them, the shadow reached out and ended in knife-edge abruptness into an all-but-unbearable blaze of white light, that glittered from myriad crystals along a rocky ground.

"Space!" gasped Donovan. "It looks like snow." And it did.

Powell's eyes swept the jagged glitter of Mercury to the horizon and winced at the gorgeous brilliance.

"This must be an unusual area," he said. "The general albedo of Mercury is low and most of the soil is gray pumice. Something like the Moon, you know. Beautiful, isn't it?"

He was thankful for the light filters in their visiplates. Beautiful or not, a look at the sunlight through straight glass would have blinded them inside of half a minute.

Donovan was looking at the spring thermometer on his wrist. "Holy smokes, the temperature is eighty centigrade!"

Powell checked his own and said: "Um-m-m. A little high. Atmosphere, you know."

"On Mercury? Are you nuts?"

"Mercury isn't really airless," explained Powell, in absent-minded fashion. He was adjusting the binocular attachments to his visiplat, and the bloated fingers of the insosuit were clumsy at it. "There's a thin exhalation that clings to its surface—vapors of the more volatile elements and compounds that are heavy enough for Mercurian gravity to retain. You know: selenium, iodine, mercury, gallium, potassium, bismuth, volatile oxides. The vapors sweep into the shadows and condense, giving up heat. It's a sort of gigantic still. In fact, if you use your flash, you'll probably find that the side of the cliff is covered with, say, hoar-sulphur, or maybe quicksilver dew.

"It doesn't matter, though. Our suits can stand a measly eighty indefinitely."

Powell had adjusted the binocular attachments, so that he seemed as eye-stalked as a snail.

Donovan watched tensely. "See anything?"

The other did not answer immediately, and when he did, his voice was anxious and thoughtful. "There's a dark flat spot on the horizon that might be the selenium pool. It's in the right place. But I don't see Speedy."

Powell clambered upward in an instinctive striving for better view, till he was standing in unsteady fashion upon his robot's shoulders. Legs straddled wide, eyes straining, he said: "I think . . . I think— Yes, it's definitely he. He's coming this way."

Donovan followed the pointing finger. He had no binoculars, but there was a tiny moving dot, black against the blazing brilliance of the crystalline ground.



"I see him," he yelled. "Let's get going!"

Powell had hopped down into a sitting position on the robot again, and his suited hand slapped against the Gargantuan's barrel chest. "Get going!"

"Giddy-ap," yelled Donovan, and thumped his heels, spur fashion.

The robots started off, the regular thudding of their footsteps silent in the airlessness, for the nonmetallic fabric of the insosuits did not transmit sound. There was only a rhythmic vibration just below the border of actual hearing.

"Faster," yelled Donovan. The rhythm did not change.

"No use," cried Powell, in reply. "These junk heaps are only geared to one speed. Do you think they're equipped with selective flexors?"

They had burst through the shadow, and the sunlight came down in a white-hot wash and poured liquidly about them.

Donovan ducked involuntarily. "Wow! Is it imagination or do I feel heat?"

"You'll feel more presently," was the grim reply. "Keep your eye on Speedy."

Robot SPD 13 was near enough to be seen in detail now. His graceful, streamlined body threw out blazing high lights as he loped with easy speed across the broken ground. His name was derived from his serial initials, of course, but it was apt, nevertheless, for the SPD models were among the fastest robots turned out by the United States Robot & Mechanical Men Corp.

"Hey, Speedy," howled Donovan, and waved a frantic hand.

"Speedy!" shouted Powell. "Come here!"

The distance between the men and the errant robot was being cut down momentarily—more by the efforts of Speedy than the slow plodding of the fifty-year-old antique mounts of Donovan and Powell.

They were close enough now to notice that Speedy's gait included a peculiar rolling stagger, a noticeable side-to-side lurch—and then, as Powell waved his hand again and sent maximum juice into his compact headset radio sender, in preparation for another shout, Speedy looked up and saw them.

Speedy hopped to a halt and remained standing for a moment—with just a tiny, unsteady weave, as though he were swaying in a light wind.

Powell yelled: "All right, Speedy. Come here, boy."

Whereupon Speedy's robot voice sounded in Powell's earphones for the first time.

It said: "Hot dog, let's play games. You catch me and I catch you; no love can cut our knife in two. For I'm Little Buttercup, sweet Little Buttercup. Whoops!" Turning on his heel, he sped off in the direction from which he had come, with

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a speed and fury that kicked up goutts of baked dust.

And his last words as he receded into the distance were, "There grew a little flower 'neath a great oak tree," followed by a curious metallic clicking that *might* have been a robotic equivalent of a hiccup.

Donovan said weakly: "Where did he pick up the Gilbert and Sullivan? Say, Greg, he . . . he's drunk or something."

"If you hadn't told me," was the bitter response, "I'd never realize it. Let's get back to the cliff. I'm roasting."

It was Powell who broke the desperate silence. "In the first place," he said, "Speedy isn't drunk—not in the human sense—because he's a robot, and robots don't get drunk. However, there's *something* wrong with him which is the robotic equivalent of drunkenness."

"To me, he's drunk," stated Donovan, emphatically, "and all I know is that he thinks we're playing games. And we're not. It's a matter of life and very gruesome death."

"All right. Don't hurry me. A robot's only a robot. Once we find out what's wrong with him, we can fix it and go on."

"Once," said Donovan, sourly.

Powell ignored him. "Speedy is perfectly adapted to normal Mercurian environment. But this region"—and his arm swept wide—"is definitely abnormal. There's our clue. Now where do these crystals come from? They might have formed from a slowly cooling liquid; but where would you get liquid so hot that it would cool in Mercury's sun?"

"Volcanic action," suggested Donovan, instantly, and Powell's body tensed.

"Out of the mouths of sucklings," he said in a small, strange voice, and remained very still for five minutes.

Then he said, "Listen, Mike, what did you say to Speedy when you sent him after the selenium?"

Donovan was taken aback. "Well, damn it—I don't know. I just told him to get it."

"Yes, I know. But how? Try to remember the exact words."

"I said . . . uh . . . I said: 'Speedy, we need some selenium. You can get it such-and-such a place. Go get it.' That's all. What more did you want me to say?"

"You didn't put any urgency into the order, did you?"

"What for? It was pure routine."

Powell sighed. "Well, it can't be helped now—but we're in a fine fix." He had dismounted from his robot, and was sitting, back against the cliff. Donovan joined him and they linked arms. In the distance the burning sunlight seemed to wait cat-and-mouse for them, and just next them, the



two giant robots were invisible but for the dull red of their photoelectric eyes that stared down at them, unblinking, unwavering and unconcerned.

Unconcerned! As was all this poisonous Mercury, as large in jinx as it was small in size.

Powell's radio voice was tense in Donovan's ear: "Now, look, let's start with the three fundamental Rules of Robotics—the three rules that are built most deeply into a robot's positronic brain." In the darkness, his gloved fingers ticked off each point.

"We have: One, a robot may not injure a human being under any conditions—and, as a corollary, must not permit a human being to be injured because of inaction on his part."

"Right!"

"Two," continued Powell, "a robot must follow all orders given by qualified human beings as long as they do not conflict with Rule 1."

"Right!"

"Three: a robot must protect his own existence, as long as that does not conflict with Rules 1 and 2."

"Right! Now where are we?"

"Exactly at the explanation. The conflict between the various rules is ironed out by the different positronic potentials in the brain. We'll say that a robot is walking into danger and knows it. The automatic potential that Rule 3 sets up turns him back. But suppose you *order* him to walk into that danger. In that case, Rule 2 sets up a counterpotential higher than the previous one and the robot follows orders at the risk of existence."

"Well, I know that. What about it?"

"Let's take Speedy's case. Speedy is one of the latest models, extremely specialized, and as expensive as a battleship. It's not a thing to be lightly destroyed."

"So?"

"So Rule 3 has been strengthened—that was specifically mentioned, by the way, in the advance notices on the SPD models—so that his allergy to danger is unusually high. At the same time, when you sent him out after the selenium, you gave him his order casually and without special emphasis, so that the Rule 2 potential set-up was rather weak. Now, hold on; I'm not blaming you. I'm just stating facts."

"All right, go ahead. I think I get it."

"You see how it works, don't you? There's some sort of danger centering at the selenium pool. It increases as he approaches, and at a certain distance from it the Rule 3 potential, unusually high to start with, exactly balances the Rule 2 potential, unusually low to start with."

Donovan rose to his feet in excitement. "And it strikes an equilibrium. I see. Rule 3 drives him back and Rule 2 drives him forward—"

"So he follows a circle around the selenium

pool, staying on the locus of all points of potential equilibrium. And unless we do something about it, he'll stay on that circle forever, giving us the good old runaround." Then, more thoughtfully: "And that, by the way, is what makes him drunk. At potential equilibrium, half the positronic paths of his brain are out of kilter. I'm not a robot specialist, but that seems obvious. Probably he's lost control of just those parts of his voluntary mechanism that a human drunk has. Ve-ery pretty."

"But what's the danger? If we knew what he was running from—"

"You suggested it. Volcanic action. Somewhere right about the selenium pool is a seepage of gas from the bowels of Mercury. Sulphur dioxide, carbon dioxide—and carbon monoxide. Lots of it—and at this temperature."

Donovan gulped audibly. "Carbon monoxide plus iron gives the volatile iron carbonyl."

"And a robot," added Powell, "is essentially iron." Then, grimly: "There's nothing like deduction. We've determined everything about our problem but the solution. We can't get the selenium ourselves. It's still too far. We can't send these robot horses, because they can't go themselves, and they can't carry us fast enough to keep us from crisping. And we can't catch Speedy, because the dope thinks we're playing games, and he can run sixty miles to our four."

"If one of us goes," began Donovan, tentatively, "and comes back cooked, there'll still be the other."

"Yes," came the sarcastic reply, "it would be a most tender sacrifice—except that a person would be in no condition to give orders before he ever reaches the pool, and I don't think the robot would ever turn back to the cliff without orders. Figure it out! We're two or three miles from the pool—call it two—the robot travels at four miles an hour; and we can last twenty minutes in our suits. It isn't only the heat, remember. Solar radiation out here in the ultraviolet and below is *poison*."

"Um-m-m," said Donovan, "ten minutes short."

"As good as an eternity. And another thing. In order for Rule 3 potential to have stopped Speedy where it did, there must be an appreciable amount of carbon monoxide in the metal-vapor atmosphere—and there must be an appreciable corrosive action therefore. He's been out hours now—and how do we know when a knee joint, for instance, won't be thrown out of kilter and keel him over. It's not only a question of thinking—we've got to think *fast*!"

Deep, dark, dank, dismal silence!

Donovan broke it, voice trembling in an effort to keep itself emotionless. He said: "As long as we can't increase Rule 2 potential by giving further orders, how about working the other way? If we increase the danger, we increase Rule 3

potential and drive him backward."

Powell's visiplat had turned toward him in a silent question.

"You see," came the cautious explanation, "all we need to do to drive him out of his rut is to increase the concentration of carbon monoxide in his vicinity. Well, back at the Station there's a complete analytical laboratory."

"Naturally," assented Powell. "It's a mining station."

"All right. There must be pounds of oxalic acid for calcium precipitations."

"Holy space! Mike, you're a genius."

"So-so," admitted Donovan, modestly. "It's just a case of remembering that oxalic acid on heating decomposes into carbon dioxide, water, and good old carbon monoxide. College chem, you know."

Powell was on his feet and had attracted the attention of one of the monster robots by the simple expedient of pounding the machine's thigh.

"Hey," he shouted, "can you throw?"

"Master?"

"Never mind." Powell damned the robot's molasses-slow brain. He scrabbled up a jagged brick-size rock. "Take this," he said, "and hit the patch of bluish crystals just across that crooked fissure. You see it?"

Donovan pulled at his shoulder. "Too far, Greg. It's almost half a mile off."

"Quiet," replied Powell. "It's a case of Mercurian gravity and a steel throwing arm. Watch, will you?"

The robot's eyes were measuring the distance with machinely accurate stereoscopy. His arm adjusted itself to the weight of the missile and drew back. In the darkness, the robot's motions went unseen, but there was a sudden thumping sound as he shifted his weight, and seconds later the rock flew blackly into the sunlight. There was no air resistance to slow it down, nor wind to turn it aside—and when it hit the ground it threw up crystals precisely in the center of the "blue patch."

Powell yelled happily and shouted, "Let's go back after the oxalic acid, Mike."

And as they plunged into the ruined substation on the way back to the tunnels, Donovan said grimly: "Speedy's been hanging about on this side of the selenium pool, ever since we chased after him. Did you see him?"

"Yes."

"I guess he wants to play games. Well, we'll play him games!"

They were back hours later, with three-liter jars of the white chemical and a pair of long faces. The photo-cell banks were deteriorating more rapidly than had seemed likely. The two steered their robots into the sunlight and toward the waiting Speedy in silence and with grim purpose.

Speedy galloped slowly toward them. "Here we are again. *Whee!* I've made a little list, the piano organist; all people who eat peppermint and puff it in your face."

"We'll puff something in *your* face," muttered Donovan. "He's limping, Greg."

"I noticed that," came the low, worried response. "The monoxide'll get him yet, if we don't hurry."

They were approaching cautiously now, almost sidling, to refrain from setting off the thoroughly irrational robot. Powell was too far off to tell, of course, but even already he could have sworn the crack-brained Speedy was setting himself for a spring.

"Let her go," he gasped. "Count three! One—two—"

Two steel arms drew back and snapped forward simultaneously and two glass jars whirled forward in towering parallel arcs, gleaming like diamonds in the impossible sun. And in a pair of soundless puffs, they hit the ground behind Speedy in crashes that sent the oxalic acid flying like dust.

In the full heat of Mercury's sun, Powell knew it was fizzing like soda water.

Speedy turned to stare, then backed away from it slowly—and as slowly gathered speed. In fifteen seconds, he was leaping directly toward the two humans in an unsteady canter.

Powell did not get Speedy's words just then,

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though he heard something that resembled, "Lover's professions when uttered in Hessians."

He turned away. "Back to the cliff, Mike. He's out of the rut and he'll be taking orders now. I'm getting hot."

They jogged toward the shadow at the slow, monotonous pace of their mounts, and it was not until they had entered it and felt the sudden coolness settle softly about them that Donovan looked back.

"Greg!"

Powell looked and almost shrieked. Speedy was moving slowly now—so slowly—and in the *wrong direction*. He was drifting; drifting back into his rut; and he was picking up speed. He looked dreadfully close, and dreadfully unreachable, in the binoculars.

Donovan shouted wildly, "After him!" and thumped his robot into its pace, but Powell called him back.

"You won't catch him, Mike—it's no use." He fidgeted on his robot's shoulders and clenched his fist in tight impotence. "Why the devil do I see these things five seconds after it's all over? Mike, we've wasted hours."

"We need more oxalic acid," declared Donovan, stolidly. "The concentration wasn't high enough."

"Seven tons of it wouldn't have been enough—and we haven't the hours to spare to get it, even if it were, with the monoxide chewing him away. Don't you see what it is, Mike?"

And Donovan said flatly, "No."

"We were only establishing new equilibriums. When we create new monoxide and increase Rule 3 potential, he moves backward till he's in balance again—and when the monoxide drifted away, he moved forward, and again there was balance."

Powell's voice sounded thoroughly wretched. "It's the same old runaround. We can push at Rule 2 and pull at Rule 3 and we can't get anywhere—we can only change the position of balance. We've got to get outside both rules." And then he pushed his robot closer to Donovan's so that they were sitting face to face, dim shadows in the darkness, and he whispered, "Mike!"

"Is it the finish?"—dully. "I suppose we go back to the Station, wait for the banks to fold, shake hands, take cyanide, and go out like gentlemen." He laughed shortly.

"Mike," repeated Powell earnestly, "we've got to get Speedy."

"I know."

"Mike," once more, and Powell hesitated before continuing. "There's always Rule 1. I thought of it—earlier—but it's desperate."

Donovan looked up and his voice livened. "We're desperate."

"All right. According to Rule 1, a robot can't see a human come to harm because of his own in-

action. Two and 3 can't stand against it. They can't, Mike."

"Even when the robot is half cra— Well, he's drunk. You know he is."

"It's the chances you take."

"Cut it. What are you going to do?"

"I'm going out there now and see what Rule 1 will do. If it won't break the balance, then what the devil—it's either now or three-four days from now."

"Hold on, Greg. There are human rules of behavior, too. You don't go out there just like that. Figure out a lottery, and give me *my* chance."

"All right. First to get the cube of fourteen goes." And almost immediately, "Seventeen forty-four!"

Donovan felt his robot stagger at a sudden push by Powell's mount and then Powell was off into the sunlight. Donovan opened his mouth to shout, and then clicked it shut. Of course, the damn fool had worked out the cube of fourteen in advance, and on purpose. Just like him.

The sun was hotter than ever and Powell felt a maddening itch in the small of his back. Imagination, probably, or perhaps hard radiation beginning to tell even through the inosuit.

Speedy was watching him, without a word of Gilbert and Sullivan gibberish as greeting. Thank God for that! But he didn't get too close.

He was three hundred yards away when Speedy began backing, a step at a time, cautiously—and Powell stopped. He jumped from his robot's shoulders and landed on the crystalline ground with a light thump and a flying of jagged fragments.

He proceeded on foot, the ground gritty and slippery to his steps, the low gravity causing him difficulty. The soles of his feet tickled with warmth. He cast one glance over his shoulder at the blackness of the cliff's shadow and realized that he had come too far to return—either by himself or by the help of his antique robot. It was Speedy or nothing now, and the knowledge of that constricted his chest.

Far enough! He stopped.

"Speedy," he called. "Speedy!"

The sleek, modern robot ahead of him hesitated and halted his backward steps, then resumed them.

Powell tried to put a note of pleading into his voice, and found it didn't take much acting. "Speedy, I've got to get back to the shadow or the sun'll get me. It's life or death, Speedy. I need you."

Speedy took one step forward and stopped. He spoke, but at the sound Powell groaned, for it was, "When you're lying awake with a dismal headache and repose is tabooed—" It trailed off there, and Powell took time out for some reason to murmur, "Iolanthe."

It was roasting hot! He caught a movement out of the corner of his eye, and whirled dizzily; then stared in utter astonishment, for the monstrous robot on which he had ridden was moving—moving toward him, and without a rider.

He was talking: "Pardon, Master. I must not move without a Master upon me, but you are in danger."

Of course, Rule 1 potential above everything. But he didn't want that clumsy antique; he wanted Speedy. He walked away and motioned frantically. "Stay away. You can't move quickly enough. I must have Speedy!" The advance continued, and Powell yelled frantically: "I order you to stay away. I order you to stop!"

It was quite useless. You could not beat Rule 1 potential. The robot said stupidly, "You are in danger, Master."

Powell looked about him desperately. He couldn't see clearly. His brain was in a heated whirl; his breath scorched when he breathed, and the ground all about him was a shimmering haze.

He called a last time, desperately: "Speedy! I'm dying, damn you! Where are you? Speedy, I need you."

He was still stumbling backward in a blind effort to get away from the giant robot he didn't want, when he felt steel fingers on his arms, and a worried, apologetic voice of metallic timbre in his ears.

"Holy smokes, boss, what are you doing here? And what am I doing— I'm so confused—"

"Never mind," murmured Powell, weakly. "Get me to the shadow of the cliff—and hurry!" There was one last feeling of being lifted into the air and a sensation of rapid motion and burning heat, and he passed out.

He woke with Donovan bending over him and smiling anxiously. "How are you, Greg?"

"Fine!" came the response. "Where's Speedy?"

"Right here. I sent him out to one of the other selenium pools—with orders to get that selenium at all cost this time. He got it back in forty-two minutes and three seconds. I timed him. He still hasn't finished apologizing for the runaround he gave us. He's scared to come near you for fear of what you'll say."

"Drag him over," ordered Powell. "It wasn't his fault." He held out a hand and gripped Speedy's metal paw. "It's O. K., Speedy." Then, to Donovan, "You know, Mike, I was just thinking—"

"Yes!"

"Well"—he rubbed his face—the air was so delightfully cool—"when I die and go to the . . . uh . . . probable place, won't old Satan have to stretch himself to show me anything I haven't seen today?"

THE END.

# MURDERER MOST LIKELY TO SUCCEED

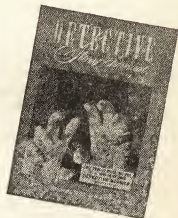
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# DISPERSION

By Malcolm Jameson

● Dispersion is why you don't hit what you aim at even when you have allowed for "everything"—and, on the other hand, why you do hit what you wanted to, sometimes, even when you didn't aim right!

A science fact article on the curious behavior of the really big guns.

Illustrated by Schneeman

The Germans have been bombarding Dover for some time. The results, considering the terrific costs, have been meager. Most of the projectiles fall in pastures or in the water or against the face of bare cliffs. Now and then a house is hit, but in general the proposition is analogous to trying to decapitate a sparrow at four hundred yards by shooting at it with a rifle. The target is too small compared with the dispersion pattern of the gun itself.

Despite the seeming efficacy of long-range shooting, as often demonstrated by battleships, it must not be forgotten that they employ the shotgun technique, not that of the rifle. They fire salvos. A full salvo of from eight to twelve guns is considered closely bunched if the several projectiles in it fall within a narrow ellipse of four hundred yards by forty. It is more likely to be spread over eight hundred yards, or even a thousand, and that after every controllable error is eliminated. A big gun, no matter how carefully constructed and served, cannot, at any considerable range, be considered a weapon of precision. An admiral in a battle would be very content if he knew he could count on two hits out of every salvo fired after the first one, and for very much the same reasons that a duck hunter is delighted if he puts three pellets out of every cartridge into a duck.

The more one knows about heavy artillery, the more he admires the ingenuity of the generations of gunners and scientists in running down the sources of error and devising ways to compensate for them. There is still a residuum of small ones, some unknown, others too trifling in themselves or too variable to admit of compensation. It is these and the imperfect correction of some of the larger factors that are responsible for dispersion. It may be of interest to run through the list, doing little more than making mention of them and stating their nature.

Stripped to its essentials, the problem appears simple. Schematically a gun is no more than a tube, closed at one end, in which a projectile is placed and expelled by an explosive. All that need be done is to point the tube in the direction desired, elevate it sufficiently, and give the projectile velocity enough to reach its destination. That big guns do hit at distances of thirty miles and more shows that these operations are susceptible of a high degree of control. But let's start at the bottom and work up, looking at what the practical gunner has to contend with.

First, there is the gun itself. It is a tube of strong steel into which the projectile tightly fits. It is rifled.\* In the rear of the projectile is a combustion chamber of somewhat larger bore than the gun proper. A gas-tight breechblock completes the assembly. The powder is exploded, and the shell starts forward. It has near its stern a rotating band of bronze which is of larger diameter than that of the bore, but not larger than that of the bore plus the grooves. The lands—the ridges between the grooves—bite into this and force the shell into rotation. By the time it emerges at the muzzle, it is spinning rapidly.

Now steel, while hard, is subject to wear. Each passing shell increases the bore slightly, so that after a number of shots the bore is appreciably enlarged. The result is that each subsequent shell fits more loosely, and part of the propelling gases blow by it on the way out. The result is a loss of muzzle velocity and a consequent steadily lowering of the range attainable. This wear may or may not proceed evenly, but it can only be dealt with in terms of averages. The rule of thumb is that a gun's life is two hundred full-charge rounds—twelve-inch to sixteen-inch guns. The accuracy

\* Note: There are two kinds of rifling: uniform pitch and increasing pitch. Theoretically and actually the latter is better, but the cost of cutting spiral grooves of slowly increasing curvature is so great and the advantages so little that the straight twist is the one commonly used.



falls off rapidly after one hundred. There are also some exasperating by-products. The copper wipes off and is smeared on the inner surfaces of the tube, *decreasing* its bore, sometimes to a dangerous extent. This copper has to be removed periodically by lapping. What is worse, steel, especially when hot, may be said to be actually viscous—that is, it will flow slightly under pressure. The result is that the shell in its forward motion drags the surface of the lining with it, with the resultant formation of “constriction rings” which also have to be bored out now and then. Big guns have been known to blow their muzzles off on account of these.

The fire-control officer deals with the above erosion error by keeping an accurate record of every firing of every gun, and deducting so many foot-

seconds of velocity from each successive shot. It follows that where the guns of a given battery have been separately employed, they have to be given individual elevations in order to hit the identical target.

A variable very difficult to deal with is the “hot-gun correction.” In sustained firing, a gun heats up rapidly and to a considerable intensity. Smokeless powder burns faster when its temperature is higher, and when it does, it imparts higher velocities. If a gun—having just been fired—is loaded with a charge of powder, and then the next salvo delayed for a minute or so, how much faster is the powder going to be? Nobody knows exactly, for the time is too short for uniform heating. It is also too short—and irregular—to warrant making a correction, usually, though such a

stepping up of the velocity may amount to a hundred or more foot-seconds at the muzzle.

Guns also warp and droop, but nothing is done about it, on the theory that they straighten themselves out under the internal stresses of firing. That is, if the sun is shining on the left side of a gun, that side will expand more than the other, and the gun will tend to curl away from the light. Since its muzzle is unsupported, it hangs down to a measurable extent. Whether this whipping about actually affects accuracy is hard to say. Probably not much, but it adds to the uncorrected residuum that makes dispersion.

Despite careful manufacturing control, no two batches of smokeless gunpowder have quite the same characteristics. Each is thoroughly mixed and samples proved, and the batch is given an index number. Each index has its own velocity-temperature curve. Naturally, every effort is made to keep magazine temperatures constant and the gunner notes those and the particular index he happens to be using at the time. Every degree more or less means a few feet more or less in muzzle velocity. What velocity will powder S. P. D. 857 impart if it has been in a magazine whose temperature has been 70° all night, but two hours ago rose to 80°, then taken out and kept in the handling room for five minutes—at 93°—and afterward put into a gun—whose paint is already blistering—and held for forty seconds? I have an idea that there is an uncertainty there of a dozen or so foot-seconds m. v. That sort of thing helps scatter shots.

We shoot the gun. The projectile emerges from the muzzle with the velocity it is supposed to have, plus or minus some number of feet of i. v. that is virtually unmeasurable. Does it leave squarely, or canted slightly, so that the frantic gases behind it rush past one side and add to the cant? If the latter, it begins its flight with a series of oscillations that may or may not damp out as it proceeds. Some shells have been observed to land stern first, having tumbled end over end all the way. What causes "noisy flight," when a single shell going through the air sounds like an express train plowing through miles of barriers of plate glass? Maybe its rotating band sheared off, or came loose and is hanging out like a revolving rudder.

The shell is in the atmosphere now. Atmosphere has resistance, and modifies its trajectory. How much? Well, how humid is the air, how dense? Is there wind, and what is its strength and components? Those items have been noted both at the surface and by a plane ten thousand feet overhead, and corrections calculated. But this shell is going to travel fifty miles, and before it gets there it will attain an elevation of perhaps eighty thousand feet. Four or five sec-

onds after it is launched it will be in the stratosphere where the surface breeze of thirty knots from the SW. and barometric pressure of 30.58 mean nothing. Up there it is forty below and a hundred-mile NW. gale blowing, even if it is thin air. Nobody knows what happens to the shell in that region.

Care is used in manufacturing shells. They are forged, heat-treated and machined, and tested frequently every step of the way. But does the center of gravity of each individual shell coincide to the millimeter with the point marked on the blueprint? Couldn't it be a hair forward or behind, or a trifle off the axis of rotation? If so, what? Won't it wobble or tumble or gyrate, and thereby set up more resistance? If so, it won't go as far. Does the gyroscopic action of its spin keep its nose up even at the end of the trajectory, when it is falling at a sharp angle? If not, how does the shell point? This is an important consideration when firing against armor. It is also a factor in computing air resistance. Small wonder range tables and ranging formulas are empirical. Nobody would think of more than roughly computing what a hundred-mile gun would do. They would build it, fire it, and see what happens. The tabulated results would be its range table. From it they could deduce various coefficients that would be helpful in computing a hundred-and-twenty-mile range table, but without the previous experience they could only guess.

Deflection is the lateral error. It is a composite of wind effect, the earth's rotational effect, sighting errors, and drift. Drift is the measure of the crawling to the right of the plane of the trajectory of a clockwise-spinning projectile. At most ranges its extent is fairly accurately given in the range tables. At extreme ranges it appears to be erratic. The earth effect is a complex function of latitude, time of flight and direction of fire, being opposite in sign in the Northern and Southern Hemispheres. It is allowed for approximately by the ballistic correction.

How is our gun mounted? With its twin-girder mounting, recoil and counter-recoil systems, training and elevating gear, it will run into hundreds of tons weight. Armored housing will add enormously. We are speaking here of the best installations, such as are found in fortresses and on battleships, not the necessarily makeshift mounts of field artillery. The whole must admit of being whirled about as fast as possible, the gun elevated and depressed, and yet be at all times under delicate control.

The entire assembly is usually to be found in turrets sitting atop barbettes, or circular steel walls, and resting on a set of massive roller bearings. Steel, as has been said before, is not entirely rigid. In time, especially under spots fre-

quently used, such as the securing position, or along commonly used arcs, humps and depressions will be formed which will be reflected in the actual elevation of the gun. There are various means to compensate for these, but none are good forever, since the wearing continues to go on. The handiest is perhaps the sight-compensating cam, which is a wacky-looking contraption cut in opposite sign to the known irregularities of the roller path. What it does is to jiggle the sight up and down as the gun is brought around, so that the gun is depressed or elevated by the same angular amount caused by the bumps under it. Assuming the measurements were made accurately and the cam faithfully cut, it is a good correction until the hills and valleys begin to take on a new profile. There is a good chance that a few residual errors creep in here.

Next we might take up the actual training and elevating of the gun in connection with its sights, azimuth and elevation scales, et cetera. Turrets are revolved by rack and pinion, and guns are elevated by similar gears, usually motor driven. In time gears show wear and develop lost motion. If a turret, which has seen considerable use, is being trained from right to left, and either overruns the target or the target moves contrarily, its trainer must reverse his direction of train. At once errors are introduced. The turret will move appreciably before all the trains of gears concerned, including those affecting the sights, have taken up their slack. A few, or many, seconds of arc will be dropped. At fifty miles a few minutes of arc spell quite a few feet. The same thing goes on in the elevating gear, with far more serious results, as the degree of elevation is more sensitive than that of azimuth.

To this point everything said is about an individual gun. Such guns are usually used in batteries. There must be horizontal spacing between guns, and there is often vertical spacing. That is, the guns are to the right and the left of each other, and perhaps higher or lower. That introduces parallax, which varies not only with the range, but with the bearing of the target. Parallax is a simple enough correction, mathematically speaking, but the trouble is—except for such exceptional situations as stationary batteries firing at a stationary Dover—that either the target or the battery or both are in motion. The bearing between them is changing momentarily. Moreover, the range is never known with exactitude.

For example, imagine a battleship firing at another, close to, having come up on it suddenly in the mist. The range is, say, only five thousand yards. The forward turrets are several hundred feet away from the after turrets, and somewhat higher. The traces of their several trajectories

on the water will map out a long, lean "X." A salvo that hits may be nicely bunched, but if it is much over or short, it will appear to be spread out, giving a false impression as to the deflection used. The illusion is added to by the movement of the ship after firing until the shots land and are visible. A prudent spotter will not attempt to correct both range and deflection in a single spot if the salvo is a bad miss in range.

If each individual gun in the battery suffers from its defects and uncertainties, the battery as a whole is subject to the sum of these, as well as a new group of its own. The data which are the basis of the fire control come in mostly through optical instruments, each of which has its own inherent errors. Operators have individual peculiarities due to synapse time and such. Graduated scales and verniers are only so accurate.\* The transmission is electrical and subject to other lags and disturbances. Gyro repeaters have a way of wandering, and must be closely watched. The data flow in through range finders and target-bearing transmitters and are piped to trackers and range keepers where it are converted to rates and predictions. These in turn are piped to visuals and to directorscopes. Many small errors must creep in, but each too tiny to do anything about.

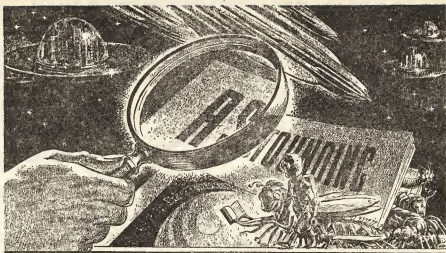
There comes a point where the exacting physicist throws up his hands and withdraws, and the practical gunner has to take over. To the scientist dependable measurements on a battleship fighting in a seaway are as impossible as compounding a prescription atop a bucking bronco. She is rolling and pitching and yawing, and with it all she hogs and sags, for a ship is not so rigid as not to writhe and bend when supported unequally by erratic wave crests. To complicate things she zigzags and makes frequent changes of speed, as does her target. Smoke and spray and irregular atmospheric refraction do nothing to ease the task of the men at the eyepieces of the optical instruments. Gun platforms are weaving and swaying in irregular rhythms. Yet they must carry on. They look, they compute, they load and fire. And, miraculously, they hit!

Physics, chemistry and mathematics took them just so far. To go the whole way, they had to fall back on common sense and the snap judgment of well-trained and experienced men. No battleship ever made a long-range hit comparable to the feats of the pioneer squirrel shooters.

No one can say that long-range gunnery is not a science. Without science it would be impossible. But until science has disposed of dispersion, it must also be an art.

\*This may seem an extreme statement. Let the skeptic read the Coast and Geodetic Survey's instruction to field men as to adjustments and corrections to be made to observations made with theodolites. And those instruments are not cheap engineers' transits.





## BRASS TACKS

*As a long-time fan myself, I think he's right.*

My dear Mr. Campbell:

This friendly controversy concerning the "good old days" has me rather intrigued. It appears that some of us old-timers are thinking of the days when we read "The Moon Pool," "Skylark of Space," "Skylark Three," "Piracy Preferred," "Islands of Space," "When the Dark Star Passes," "Invaders from the Infinite," et cetera.

Those were wonderful stories, and still are—I read the latter story for the seventh or eighth time just last week. I know that all who bought and read those classics when they first came out will treasure them until the day when they can no longer be aware of any worldly thing. I know, because I have them all, right beside me at this moment; I can reach for any story you can call to mind, including the old "Science and Invention" stories!

But, the same type of story doesn't elicit the smallest amount of interest from me now. Why? Not because it may be an old plot, but because I am that number of years older than I was then. I was just a squirt then, searching for that new thrill any red-blooded American youth yearns after. I'm in the grand old American scheme of things now, raising a family, et cetera. What I'm driving at is this: we've grown up with science-fiction, faltered with it, grown strong with it, and we're just a wee bit wearied. So we look back on the golden days, and the slim days, and that old nostalgic feeling puts a crimp in the old cranium.

As for me, I've analyzed it to my own satisfaction and know how to take the old with the new, the good with the bad. I have no kick coming, and I hope my children can extract the hours of relaxation and education that I have from science-fiction.

I was almost disappointed with "Second Stage Lensmen," but the second installment warms up the old continuity.—Thomas R. Daniel, 721 Wisconsin Street, Pomona, California.

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*Four votes for the "Children."*

Dear John:

Pardon the informal greeting, but it's a manner of rebellion against the mildewing "Dear Mr. Campbell." Such a singular phrase throughout issue after issue of Astounding Science-Fiction is far more than I can stand, s'help me.

Another year brings another rating for the Analytical Laboratory of 1941. Distinctly noticeable this last year is the lacking of any "Final Blackout" or "Slan" marvels. However, equally noticeable, is the distinct amount of stories that are top notch. Disregarding those two epics, every story in this year's rating is far, far ahead of the ten in last year's. Even the extra five I have included are more memorable, more enjoyable than any of the last five of last year's big ten. So, without further ado, here are the results of several hours of honest thought:

1. "Methuselah's Children," by Robert Heinlein. This is the story that proves Heinlein's definite ability to write and maintain interest over a long period of time. He has that doggone trait of leaving the reader sitting on the edge of the chair at the end of every chapter. It's bad to hear that Bob may not be with us for too much longer, but all good things usually come to an end—as dislikable as the fact is. Fair illustrations.

2. "Sixth Column," by Anson MacDonald. This story merely doubles the above conclusions. De-

spite the above story's good merits, it was very hard to choose between this and that for first place. I hope we see more like this one. Good illustrations.

3. "Microcosmic God," by Theodore Sturgeon. Not many may rate this so highly, but it struck me as one of the truly top stories of the year. Perhaps the author dashed it out—I cannot tell—but it certainly reads like a story that has been worked on and worked on—and then worked on. Good illustrations.

4. "Common Sense," by Robert Heinlein. This and the next are so close together that it's hard to say which goes first. Because this is the newer, and because I liked this sequel whereas I usually do not, this takes the leading position. Fair illustrations.

5. "Universe," by Robert Heinlein. Just like I said to Bob at the Denvention, "Swell!" and then some. Fair illustrations.

6. "By His Bootstraps," by Anson MacDonald. Wonderful, wonderful. I first wished to place this higher, but there really wasn't much to the story. I was sorely disappointed because Diktor didn't end the story as the little old man he had first met. That would be a perfect foil and ending—or would it? Fair illustrations.

7. "The Stolen Dormouse," by L. Sprague de Camp. The best story de Camp has written in a long time. This is the kind of thing one would expect in a slick sfiction magazine. It should have sold to *Esqy* if it had been a bit shorter—and it *should* have been shorter. Good illustrations.

8. "Jay Score," by Eric Frank Russell. It's not often that a short story is as good as this, but here's one fit for the best short stories of the year 1941. It was a perfect story all the way through, then it left one with a satisfied feeling after the perfect first ending. But to spring that second ending—a real shock—It was a real story! Good illustrations.

9. "Elsewhere," by Caleb Saunders. This is a story by a rather new author, yet it hits the spot. This writer has a very intriguing style, a most interesting way, a highly fascinating method—He should be doing great things in the future. More, please. Fair illustrations.

10. "Logic of Empire," by Robert Heinlein. A swell story, written well enough for first place, that just wasn't true sfiction. What I mean is that one might expect to find this in the *Post* or *Atlantic*, note its bit of stf atmosphere, but pass over it without much thought other than *maybe it was the best in the issue*. Let's stick to science-fiction in Astounding. Excellent illustrations.

I'd rate "Beyond All Weapons" as the eleventh baby. This shows that Nat Schachner is still the grand old master he was in the days of super science, et cetera. Then comes another tale that

many will forget: "The Mutineers," by Kurt von Rachen. While many thought this series a let-down, I thought it one of the best new ones in a long time. Is there a chance of continuance?

"Jurisdiction," by Schachner, cops the number thirteen spot—cops it with the best of the series he has instigated. The last two positions are for Bester's "Adam and Eve" and Simak's "Masquerade." Simak improves with age, while Bester is one of the best new authors. The illustrations for Schachner's bit were good, but the ones for von Rachen's were excellent with high drama. The next were good and the last two were only fair.

The best article of the year—after a heated race—was your own "We're Not All Human." It was finely written, as expected, and contained some very intriguing points. And now, on a bit of a different topic, but leading directly from those already advanced.

Art! The interior work, as a whole, is only fair. And, when compared to competitive promags in the sfiction field, it is among the worst, for our group has the best illustrated of the pulps. You know that, the reader knows it, and so does everyone else. Schneeman is swell; I couldn't hope for anyone better. And Cartier is splendid for some of the off-trail yarns, but you need additions. Boris Dolgov, a rather new artist, is fitted perfectly for such stories as written by Saunders, Williams, Moore, Stuart, and so on. Rogers does in a pinch, but he should read the letter section. His work is hacked off so sloppily that he rates with Morey; and what do the majority of fans think of Morey? Hmph!

The covers are quite on top, but how about a change from the steady diet of Rogers? Frank Paul, who seems to be one of your bad allergies, is top rate for science-fiction. Also, since Cartier is excluded from *Unknown Worlds*, why not have him do a cover for Astounding? Or does army life stand in the way? Incidentally, to repeat a phrase that slides in one of your ears and out the other, how about a little Finlay? Virgil is the best there is.

Lost But Not Found Department: Catherine Louise Moore, the best feminine author and among the top of any list, is sorely deficient. Please, please get her back. "Greater than Gods," "Greater Glories," "Bright Illusion," "Tryst in Time": so few, but oh, so good. I guess you haven't much time to give us much Campbell, but Gallun would set well. I miss such as "Seeds of the Dusk," "Old Faithful," "Son of Old Faithful," et cetera.

As noted in the first paragraph or second, "Final Blackout" Hubbard is needed. Greatly needed. And keep on with Heinlein, Williamson, Smith, Schachner, Rocklynne, and so many others. Vincent, Wandrei, del Rey, and van Vogt, too, are needed.

Now for a few ratings on the current issue. For the records, the December, 1941, issue of *Astounding* had the year's best letter section.

1. "Second Stage Lensmen," by E. E. Smith.
2. "Homo Saps," by Webster Craig.
3. "Defense Line," by Vic Phillips.
4. "Operation Successful," by Robert Arthur.
5. "The Sorcerer's Apprentice," by Colin Keith.

Probably I enjoyed Arthur just a little more than Phillips, but the rather illogical ending spoiled the story more than it aided it. After all, wouldn't Devans have been able to prove that he was really "Devans" and not "Banning" by the simple expedient of challenging Banning to tell all about the patrol? When Banning became unable to tell everything and Devans proved himself capable, the entire mystery would have been cleared up, because everyone knew the strange ways of the planet's inhabitants. Naturally I wanted Banning to win out, but there should have been something to keep Devans out of control, such as his going crazy with dope addiction or a similar ruse.

"Second Stage Lensmen" got off to a bad start; not truly bad when compared to usual stories, but bad for Smith. He was far too verbose for even the overtalkative Double-E. The second part is far more interesting than the first, though it is easy to note Heinlein's influence after the two got together.

I believe that Rogers' cover for the second installment was fine as a science-fiction picture, but the hull was far too thick. Also, his illustration for the first installment showed the Lensman as a typical moron, no foolin'. The slanting brow, the brutal features, the muscle-bound neck. It's noticed that Rogers has been slipping lately.

At any rate, keep up those fine editorials. They're far more enjoyable than the run of the mill. It's truly grand to see that the next issue will be large-size; of course, by the time this sees print—granting that it does—this will be the second big issue.

In closing, I'd like to mention that our Golden Gate Futuria Society is swinging on high. Every single member is an *Astounding* Stefan, which isn't as astounding as it may seem. We meet every Friday evening at 1845 Prince Street in Berkeley with Louis Smith as director. As assistant director, I'll be glad to hear from anyone wishing to ring ANdover 2559 or write to my address below.

Happy selling with the new size.—Joe Fortier, 1836-39th Avenue, Oakland, California.

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*Report on 1941.*

Dear Mr. Campbell:

It is unnecessary to mention that Smith's tale is, of course, tops in the December issue of *As-*

tounding. It is necessary, however, to put in a good word for the Rogers cover, as it is by far better than most of the work he has turned out recently. I believe it tops everything up to last March; that "Logic of Empire" job was one of the best covers you have ever printed.

"Defense Line" comes in second, but it has one bad fault. The planets, Mr. Phillips, lie mostly on the same plane, with here and there a slight deviation. Hence the Asteroid Belt is a ring, not a hollow globe; and hence the whole idea of your story is off. The Asteroids couldn't be a Defense Line. All the Invader has to do is to dive over or under the plane of the ecliptic and avoid Mr. Bevan's rock trap as neatly as you please. Conversely, the "toll gate" mentioned at the last would also be impossible, since the Inner Planetarians could do the same trick. Space, unfortunately, is three-dimensional, not two; and that fact has ruined no end of stories about space blockades and such. Otherwise, a good story, despite a plot that couldn't happen.

Short stories—hm-m-m—this'll be tough. "Homo Saps" next, I guess. I don't suppose many people will agree with me there, but I thought it was quite clever. Then "The Sorcerer's Apprentice," followed by "Bullard Reflects" and "Operation Successful." All good, this time; not a dud in the bunch. That'll look different, though, when you consider the science. Then "Sorcerer's Apprentice" would be next to Smith, and Phillips would be down on the bottom!

Give the medal to Cartier. Rogers and Kramer follow, in that order. Kramer's second, third and fourth pics for "Defense Line" are actually good illustrating. His others—ugh!

And now comes that which makes every fan sick, causes authors to commit suicide, and generally makes people miserable, including the editor, no doubt. Namely, the Annual Report. Smith, as you suggested, is not counted. Thus we have:

1. "Methuselah's Children," by Robert Heinlein. There's a story with a good deal of Smith, a good deal of Williamson, a little Weinbaum, and a lot of Robert Heinlein in it. Some story! The last installment had some concepts that might have been fed to us at a slower pace—as "If This Goes On" did—but still, a swell story. It can't compete with "Slan," but it can with "Final Black-out"; losing in the end, however. However, it completely eclipses "If This Goes On," "Crisis in Utopia," et cetera. I'd call it the year's classic.

2. Not very far behind it are "Universe" and "Common Sense." Say, is this a Heinlein monopoly? But he deserves it. My, how that man can write!

3. The rapidly rising Mr. MacDonald gets in with "Solution Unsatisfactory." Another new man. "The old order changeth—"

4. "Nightfall." Asimov has written a classic.

(If this is a classic, what are the three above?) And yet another new author!

5. "By His Bootstraps," and it's MacDonald again. My, such a screwy story! And my, such a good one! This is what you might call the year's Time Classic.

6. The next one, "Microcosmic God," has me puzzled. At times I am inclined to say, "Well, there's nothing to it." And again I put it up with "Universe." Now it's here. There's something about Sturgeon that gets me. Another new one, by the way.

7. "Backlash," by Jack Williamson. Another Time Classic, and at last an old-timer. Which, of course, suggests that we have more Williamson.

8. "We Also Walk Dogs," and MacDonald again. This is a rather peculiar yarn, as I've said before. Beside it is "Biddiver," another one by Sturgeon. I can't seem to get these two apart. So different, and yet—

9. "The Stolen Dormouse," by L. Sprague de Camp. He's not exactly new, in a way, yet not an old-timer, either. That has nothing to do, of course, with the story, which is a typical de Campish tale, and, as such, is very good.

10. This is where I always have trouble. There are so many yarns that ought to go down on the books. But, anyway, here goes—and it'll simply have to be a tie: "Logic of Empire," another Heinlein tale; "Reason," a clever and amusing short story; "Artnan Process," Sturgeon at his best; "The Seesaw," another good yarn; and finally "The Door," short short of the year.

"Mechanical Mice," also good, doesn't quite make it.

Don't think that these are all the good stories. There were plenty of 'em: "Sixth Column," "Best Laid Scheme," "Crooked House," "Poker Face," "Brown," "Mission," "Short-circuited Probability," "Not Final," "Finity," "Defense Line," "Homo Saps," and lots of others. These so far mentioned are all A-plus stories. So you can see that Astounding rates high in these quarters.

Stories that missed fire: "Klystron Fort," "Seat of Oblivion," and "Liar." I suppose I should have liked the latter, but somehow it didn't agree with me. Not a very big list, eh? And these yarns didn't really *stink*; they just weren't up to your standard.

My, how this letter has grown! This is where we came in, folks.—Paul Carter, 156 South University Street, Blackfoot, Idaho.

An. (for Annual) Lab.

Dear Mr. Campbell:

Comes the December number and—yes, you've guessed it—1941's Analytical Lab. I only hope

that this will become a permanent feature, the Lab for one entire year being published, say, in the following April issue when all the reader reactions are in.

On the whole—to use a hackneyed phrase—the 1941 Astoundings are definitely better than those of 1940. Not that the best stories, articles and covers of this year are appreciably superior—it's simply that there's more of 'em! Having spent several years mainly on improving the quality, you seem to have been concentrating lately on the quantity—but without any subsequent drop in the former.

Thus, it's been really difficult to pick the best yarns from so many good ones—especially from the No. 5 spot on down—but here they are:

1. "Methuselah's Children"—Heinlein. Bob is one of those absolutely rare authors that has a vast knowledge of, and a deep insight into, human character and experience—another being Bill the Bard from Stratford-on-Avon. Still, if the first two installments are any criterion, Smith's super-epic—oh, boy!—would have beaten this yarn out for first place had it been complete in this year—though only by the breadth of an atom.

2. "Universe"—Heinlein. And he also has a knack for original plots.

3. "Sixth Column"—MacDonald. The first, and thus far the best, work of a very promising newcomer.

4. "Solution Unsatisfactory"—MacDonald. As grimly realistic as "Final Blackout."

5. "Nightfall"—Asimov. It's taken some time, but he's really hitting his stride now.

6. "The Stolen Dormouse"—de Camp. Start L. Sprague writing a tale based on his own field of economics and you have something.

7. "Common Sense"—Heinlein. Practically a continuation of the No. 2 yarn, but worthy of being rated separately.

8. "The Mechanical Mice"—Hugi. Would that he could write more tales like this little gem. Originality plus!

9. "The Probable Man"—Bester. Am running short of blurbs, but I think "excellent" would just about cover it.

10. "By His Bootstraps"—MacDonald. Good, but its rather jaded plot prevented it from being better.

Honorable mention should definitely go to such stories as "Homo Saps," "Liar!" "Jay Crook," "Microcosmic God," "And He Built a Crooked House," "Not Final!" and—stop me, quick, before this goes too far!

Heinlein holds the crown this year, as van Vogt did in 1940, for the best writing of 1941. Incidentally, van Vogt has been a disappointment lately—what's happened to his formerly facile pen? But then, I suppose anything can be forgiven the author of "Slan!" MacDonald seems to



be the best of the new crop of authors, and you're certainly developing his potentialities—but fast! He might eventually reach the heights of Heinlein—but I dunno; it's a pretty tough road up. However, more power to 'im!

If other votes on the articles come in, I have an idea they'll be extremely diversified, for each reader finds certain subjects more interesting than others—and so his choices run accordingly. As for me, I enjoyed "We're Not All Human," "The Sea King's Armored Division," and your editorials the most. The fact that you penned all but one has nothing to do with my preferences.

Rogers has continued drawing the covers in his typically superb style, perhaps even improving over last year. He, at least, knows how to PAINT—in the full sense of the word. His work is truly great—why, he could take any "quiet" scene, paint it in such a manner that the most lurid piece of another artist would seem pale and insignificant by comparison, and yet manage to clearly convey the original mood—and express it with dignity.

At any rate, the best covers—in order—are those of March, December, August, April and November.

Most seemingly perfect things usually have some small flaw, and Astounding is no exception. The interior art work—by comparison with the other departments—is almost too horrible to mention. The only decent artists on your staff are the Isip boys—which is probably the reason why they haven't been used lately—though Rogers isn't so bad. Kramer, Kolliker and Orban are consistently terrible, Cartier does his best work for fantasy—and that's that. Why not try to get one or more of these: Wesso, Paul, Finlay, Thorp, Forte or even Dold? Oh, well, I can dream, can't I?

And that just about rounds out the picture. So, here's wishing you the best of luck in 1942 and on the new expansion into large-size. May Astounding continue to expand and improve for all eternity!—Bill Stoy, 140-92 Burden Crescent, Jamaica, New York.

—*"—and they don't even use crystal balls!"*

Dear Campbell:

Science-fiction authors manage to be pretty wildly wrong in their prognostications of the future, most of the time, when their prophecies deal with times we actually live to check up on. But there are notable exceptions: e. g. stories prophesying a surprise attack on the United States by the yellow Aryans of Nippon, and J. D. Clark's forecast of contraterrene matter in a short story called "Minus Planet" published a few years ago. What we really need is a gadget to inform us which of the many mutually exclusive futures foreseen in the stories is most likely to be realized.

—J. Wellington Wells.

## *Books on Semantics.*

Dear Mr. Campbell:

This being a day of Thanksgiving, I seat myself before dinner to send you a greeting.

I am indeed thankful for Heinlein, and for his superb "By His Bootstraps." I have an affection for the basic concept of the tale, having tried to handle it myself, but without hitting on the very neat trick of viewpoint shift; although I am a bit envious of Heinlein, and his masterful touch, I am grateful for the resulting brilliancy.

Thanks also to Asimov for "Not Final." A neat job.

Moving up to the November issue, thanks to Smith for the third installment in the Kinnison epic. Comparing it to the Seaton epic, and to "Spacehounds of IPC," I still feel that something is missing, the same something whose presence made "Slam!" so superb.

Things for which I am not thankful: the pin-headed Lensman on the November cover; the inside illustrations in general; the low caliber of a large number of the recent stories.

Discount that last remark; with conditions the way they are, I suppose it takes a better story to entertain than it used to, last year.

In the November issue, I noticed a letter from a Mr. Jensen, in which he inquires about the subject of Semantics. I suppose he means the "General Semantics" that has been mentioned by Heinlein and others. At the present time, the word "semantics" has three different meanings. In philology, it is the study of the changes in the meanings of words, with little emphasis on the psychological reasons for the change. As used by the Ogden school in England, and the Carnap school at Chicago University, it has the meaning of "science of meanings." For those interested in this branch of philosophy, I will mention "The Meaning of Meanings," by C. K. Ogden and Richards, and the publications of the Orthological Institute regarding Basic English.

As used by Alfred Korzybski, and his disciples, it has a much wider meaning; it is with this group that the term, General Semantics, has arisen. As a field of study, it touches on a dozen widely separated subjects: psychiatry, psycho-logics, criminology, mathematics, relativity, quantum mechanics, economics, education, medicine, ethics, et cetera. For an introduction to the field, I recommend the books of Alfred Korzybski: "Science and Sanity," and "General Semantics." As he is in residence at Chicago University, those who desire more information can write him there. He is the founder of the Non-Aristotelian Library and Society, both devoted to the publication and distribution of information relating to General Semantics and Non-Aristotelian Systems.

With regard to the latter, i. e. systems of logic



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**T E N   C E N T S   A T   A L L   N E W S S T A N D S**

in which one or more of the postulates of ordinary logic are discarded or altered, I would suggest the very entertaining book, "Search for Truth," by Eric Temple Bell. Professor Bell, one of the top-ranking mathematicians in the United States, is perhaps better known to science-fiction as John Taine.

The first-named book, "Science and Sanity" contains, I believe, a long bibliography of almost seven hundred books relating in some way to Semantics.—R. Creighton Buck.

### *Steam-venting department.*

Dear Campbell:

An interesting study for those who have the leisure for that sort of thing is the relation between life and literature; or, in plainer language, the effect of political and economic events upon the writing of fiction. These effects appear in science-fiction as strongly as in any branch of literature, and, I think, to a much greater extent than in other pulp fiction.

The events of the last few years, having punctured a large number of illusions that were at one time entertained by vast numbers of people—a disproportionately large number of them belonging to the *soi-distant* intelligentsia—are interesting in this respect. For certainly history would seem to have gone out of its way to confound the prophets and the philosophers. To give a simple example, consider the military prowess actually displayed by peoples involved in the current war, compared to their reputations.

The Boskonians—pardon me, I mean Germans—turned out to be rather better than expected, and the French much worse. The Russians first did worse than anybody but the diehard anti-Communists expected in Finland, and then much better than anybody but the Communists expected against the Germans. (By the way, what has become of Mr. Ray St. Clair? We haven't heard a peep out of him.) The Japanese so far have done better than they were thought able to. The only people who have lived up to their reputation are the Italians, of whom Napoleon's Marshal Murat said: "These Italians are all alike: put them in red coats, put them in blue coats, they run away just the same!"

A type of science-fiction story that was common ten to five years ago was one wherein a dreadful war, instigated by bloodthirsty generals and greedy munitions makers, was averted by the young hero who either incited the innocent masses on both sides to revolt against their leaders, or by means of some superscientific trick rendered all weapons useless. The authors made plain their assumptions that (a) whenever a war occurred, the blame lay on *both* sides, and (b) that without

the latest lethal gadgetry, men would not fight.

Unfortunately both assumptions were as wrong as wrong could be. A little attention to history might have shown the writers what has merely been confirmed by the events of the last five years: that innocence, rectitude, and an attitude of peaceful give-and-take are no protection to a nation, and that men were fighting long before they had airplanes or capitalism. I don't recall seeing any of these stories lately; can it be that the writers have learned a lesson, if only temporarily?

Another fallacy involved in stories of this type is that of personification of War, Armaments, et cetera. H. G. Wells furnishes an example: in the "Outline of History," first published in 1920, Mr. Wells carefully exposed the fallacies of nineteenth-century nationalism, with its personifications of John Bull, Germania, et cetera. Then at the end of his book he spoke hopefully of an eventual victorious war on War, thereby committing the same mistake himself. The error in such thinking was put in a neat nutshell by a character in Willey's story "Fog": "It doesn't shoot; *men* do."

We still seem to have a couple of similar fallacies with us; let us hope that they will likewise disappear under the impact of events. They may be described as the Galahad fallacy and the David-and-Goliath fallacy.

The Galahad fallacy is the idea that "my strength is as the strength of ten because my heart is pure." It finds specific expression in the notion that courage and military skill are correlated with honesty, integrity, kindliness and other pacific virtues. As the British put it, "Bullies are always cowards." Unfortunately this does not seem to be necessarily true. Neither is the converse true, as many of the Nazis appear to believe. It is just that there is no correlation whatever.

This mental climate may become a serious handicap if it leads us to continue trying to fight a virtuous and gentlemanly war. Personally I'm tired of seeing my side on the receiving end of all the more egregious treachery and frightfulness. Wouldn't it be desirable to establish a bureau of moral obliquity in our state department, with a section of treachery and deceit, a section of fiendishness, and so on? But perhaps I had better not bear down on this idea too strongly; a *conviction* of moral superiority is an undoubted asset to a belligerent, whether the moral superiority itself is or not.

The David-and-Goliath fallacy is the notion that weakness has an inherent advantage over strength, and smallness over bigness. Striking examples of such thinking are found in such recent stories as "The Warrior Race" and "Beyond All Weapons." It has led one of my most intelligent and well-informed friends to spend most of the last three years explaining how, by means of

some cheap and simple gadget or tactic, we can lick Adolf Schickelgruber and his eighty million Boskonians practically overnight at negligible cost in blood and money.

It also appears in the persistent hostility of amateur military theorists to such large military units as the battleship, which during over a century has been doomed successively by the shell gun, the mine, the torpedo, the submarine, the bombing plane, and at this writing is doomed by the torpedo plane. To quote Marshal Marmont, in a letter written about 1837: "—from the day . . . that steamers, or even small sailing vessels, were armed with one or two [Paixans] guns—one single shot from which is sufficient to destroy the largest ship—it became absurd to construct line-of-battle ships, which not only cost one million five hundred thousand francs, but which have become useless."

Of course, the battleship *may* disappear—it disappeared once before, under the Roman Empire, but came back—or on the other hand improvements in construction, armament and tactics may make it as useful as it ever was. Some such improvements are clearly in sight now; but it'll be a few years before they are tried out, and meanwhile the airplanes will be improved, also.

So watch what happens by all means, but don't go off the deep end with sweeping prophecies about the impending obsolescence of this or that weapon, or the imminent collapse of this or that nation, *especially* prophecies based on the David-and-Goliath analogy. In history, for every case where David has licked Goliath, there are dozens in which Goliath mashed David flat and chopped him into little bits before he even got his sling shot wound up. It is still true in at least ninety-nine cases out of a hundred that you can't lick something with nothing—Mahatma Gandhi and his followers to the contrary notwithstanding. And the fewer stories that are written on the assumption that you can, the better it will be for the country in general and my digestion in particular. —Caleb Northrup.

*The January issue contained one hundred thousand words; the December—last old size—seventy thousand. The serial installment was shorter by about ten percent—because E. E. Smith broke it there.*

Dear Mr. Campbell:

A word of praise. The January issue was very much what was wanted and needed for a happy Christmas. It was swell. I am not as yet prepared to give standings for the Analytical Laboratory as I have yet to quite finish the issue. However, I think that Smith is still the man in the No. 1 position. Also the articles are first rate.

AST—8C

Or should I say first *rat*. I think that in the contents page, too little emphasis has been placed on the editor's page. Those two-page bits are one of the finest things in the mag. I want to praise you for your fine work there.

Now to get specific about the new issue. The type is good, easy to read and all that. However, I should like to see the following changes made. Stick to the two-column page and lay off that three-column stuff. Three wastes too much. The difference, by my count, being something between one hundred and fifty and two hundred words to the page. Let's have more stuff if we have to pay for more area. Now, I have a suggestion that I doubt will be paid any attention. Why don't you have more lines to the column? Instead of sixty, why not sixty-five or seventy. Of course you run into printing and composition trouble there. More lines will be harder to handle. This, of course, will result in more words to the page. Of course, I realize that the obvious answer is, "What do you want, a bigger mag?" No, that is not what I mean. Just have less space between the lines than you now have. Make it the interval that was between lines in the old type.

I now have a bone to pick with you. In your editor's page of last month, you made some statements that just don't jibe. The first of these is this: The new size will allow thirty-five thousand more words. In my count of the words, there was an increase of only about five thousand words. Why? Further, you said that the expansion in size would allow you to put a complete installment of the serial in. But, to my surprise, you even cut down on the length of the installment. By my count, the installment of "Second Stage Lensmen" was only half as long as the December installment. A reduction from forty thousand words to twenty thousand words. That will never do.

However, I think that it was a good issue and it was worth paying more for. Incidentally, the cover was lousy. A larger picture would be more in order. But you are still getting out the best mag of that type in the business, so I should not gripe. Keep up the good work.

Again, I make my plea. Why can't you get out a series of reprints of all the stories that were good? I notice that Henry Holt is publishing some of the stories by L. Sprague de Camp in book form. These stories that were first in *Unknown*, a swell mag, sell at two dollars and fifty cents per. And that is not so good. I would like to see some of the best stories that have appeared in *Astounding* come out as reprints. In my humble opinion, such reprints would sell. Whether you use the small book size or the new larger size, I don't much care, but I would like to see such a thing come out. See what you can do about this.—H. Warren Felkel.



# DESCRIBE A CIRCLE

By Eric Frank Russell

● A straight line is the shortest distance between points—and on a planet, a straight line saves fuel. But in space, when you're almost out of fuel, the long road may be the best—

Illustrated by Kramer

Same old problems, same old pressure, same old hunger for space that is free, uncontaminated, and hasn't got a percentage tied to it. Strange how history repeats itself.

Even in this year of grace 2028, Captain Alan Fraser could remember his grandfather's stories of the rush to America. That had been approximately a century ago. There had been tales of uncountable wealth, of wondrous opportunity, of freedom and hospitality, of warm, lush soil that could be had almost for the asking. The movies of that time had broadcast and made the entire planet familiar with the vigorous skyline of Manhattan, the imposing gateway to the new world. The mails had done the rest. Letters home. Missives glowing with success or with prophecies of impending success.

Our dear Sven:

We are doing fine. The government has granted us one hundred and twenty acres. It is rich earth. It is the good earth God made for honest, hard-working people. We shall never starve again. Come and help us, bringing Hansie with you. This is America, where the sweat of men is not without avail. Come, Sven—we shall meet you.

Thus the hordes of Europe poured across the Atlantic in a mighty torrent that America tried to stem to controllable dimensions. The unwanted surplus used the back door. Eager

thousands sneaked in illegally, and many an honest skipper found himself detained in the calaboose when his crew abruptly lit out for California.

Now circumstances and events were back to days of yore, except that the irresistible attraction was what tourist agencies called "the everlasting magic of Mars." Ah, Mars, the Promised Land, with one people, one language, no racial animosities, no crushing taxation, no gloomy skies and weeks of rain, no industrial grime to offend the eye. Throughout the Old World the international televisions broadcast the colorful, exotic scene of the spires and minarets of New Savannah. Messages flashed back to tawdrier homes on Earth.

**Mars Cosmoradio, Fountain of  
Eve, 14.40 hrs, 180 day, 2023.  
(M. C. spec emgt 40wd rates.)  
Dear Harry. Got through this  
morning with papers all correct.  
Working at Matthews Osmir-  
idium for eighty credits a week.  
Room for you at same rates.  
Urge your papers through and  
get Walter to come. Love to  
all. E. H. B.**

Miss Wilson's large and very liquid eyes studied the double queue of hopeful voyagers shuffling up the fore and aft gangways. Her profile was attractive, her nose pert. At her side, Captain Fraser admired her features

with a frankness she found very complimentary.

"I've often wondered," she said, "whether Mars is all it's cracked up to be."

"Every bit," he assured her. "You'll see for yourself in due time." A frown creased his brow as he propped his arms on the huge rim of the port and peered at the last of the passengers climbing up the nearest gangway. "They'll not all get in."

"No?"

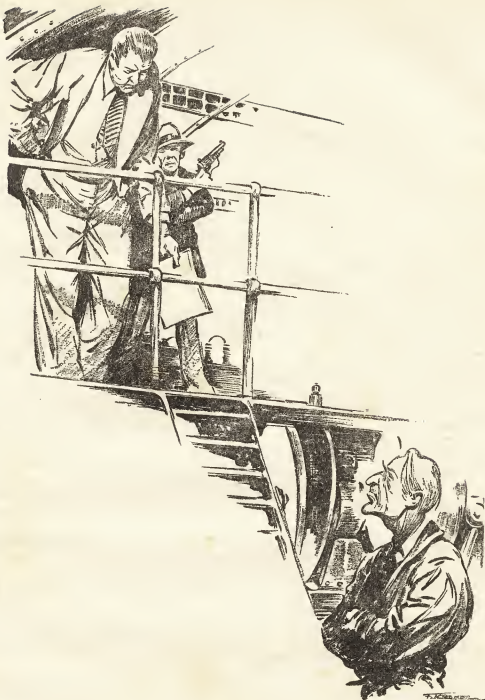
"No, not all of them. In the old days, America waxed strong and vigorous by admitting only the best of those who knocked at her door. Mars does the same. Mars is a sanctuary for the physically fit and the mentally stable. The Red Planet doesn't want and won't have Earth's halt and maimed and blind—nor her criminals."

"That is reasonable enough," she agreed. She nibbled her lip with tiny teeth, looked doubtful, and added, "Except that many people not physically fit are mentally healthy. There's many a genius in a weak body."

"For which thanks be to Providence," said Fraser, "or else Earth would lose those, too!"

"True," she admitted.

"The trouble is," he continued, "that Terrestrial permission to sail does not imply Martian permission to enter. The Martian authorities take full control within the bounds of their own



domain. They sort out the wanted from the unwanted. Always some have to come back, always."

"Yes, I understand that." Miss Wilson looked at him levelly. "Daddy said any trouble in his ship on return journeys was always caused by rejected and disappointed people."

"Sure," he agreed. "There's been trouble on outward journeys, too—but not on your father's boats."

Conducting her to her first-class cabin, he left her there, then paced thoughtfully toward the bow. The public didn't know, and she didn't know, that last month's allegedly accidental crash of the little freighter *Emily Dean* had been the result of a daring attempt at illegal entry. Captain Alan Fraser wanted no such desperate escapades aboard the *Starider*, not with six hundred souls in his charge, including the owner's daughter.

A fat man stopped Fraser halfway along the passage. He was a big man with a prominent paunch. His features were large and florid, and he noted Fraser's insignia with eyes that weren't the amiable, easygoing eyes of most fat men, but were sharp and cold and calculating. Fraser didn't like him.

"Pardon me, captain," said the other unctuously. "I fancy that young lady was the daughter of the owner of the Wilson Line?"

"Correct," answered Fraser curtly. "What of it?"

"Well, I wondered whether you would—er—be kind enough to effect an introduction sometime when it is convenient." He felt in his pocket. "My card."

Fraser read it aloud, "Colonel Rupert Cassidy." Looking up, he said, "I'll do it if Miss Wilson is agreeable." His eyes narrowed. "Otherwise not!"

"Thank you, sir," Cassidy was quite unabashed. He wandered down the passage, Fraser's gaze following him until he turned the angle at the other end.

Three Port Authority plain-clothes police and Bollond, the ship's detective, were waiting to report in the armory up by the bow lock.

"Anything?" said Fraser.

"Nothing," responded the police stolidly.

"Or nothing that we could cut out and paste in an album," qualified Bollond.

It was the usual rigmarole. The captain always asked, the police always assured him of nothing, and Bollond always qualified the usual report. The *Starider* had had no trouble to date, and that fact put Bollond at the bottom of the class. Not that he was conscious of his dunce's cap. He was long, lean and incurably skeptical.

Riffing through the illustrated pages of the latest officially issued crime gallery, Bollond said, "What's the use of lounging against gangways studying ascending faces? What criminal has the same face one week after he's out? Heck, when they caught Smuts Regan red-handed last month they had to photographize the pores in his fingerprints before they knew it was he."

"Never mind," soothed Fraser. He initialed the police report, watched the plain-clothes men depart. Then he turned to Bollond. "Nobody can do more than his best. Do what you can this trip and keep an eye on Miss Wilson."

"I will, sir."

"Oh, Bollond." He waited while the detective turned in the doorway. "Give Mr. Leyton my compliments, and tell him I'd like to see the papers filed by Colonel Rupert Cassidy."

"Very well, sir."

Bollond vanished. The frown returned to Fraser's muscular, healthy features. It was still there when First Officer Kendall came in and saluted smartly.

"Ready to blow in one hour's time, sir," reported Kendall. His young eyes discovered the frown. Impulsively he said, "Pardon me, sir, are you uneasy?"

"As a matter of fact, I am—but Heaven alone knows why." The skipper regarded Kendall with something approaching fatherly fondness. They understood each other, these two. "I think it's because the owner's daughter is making her first trip on the *Starider*." Suddenly his glance at the other was sharp. "What made you ask?"

"Nothing especially, sir. Only I've felt a bit fidgety myself. Never felt that way before, though, and don't know why I should do so now. Unless—"

"Unless what?"

"It may seem overimaginative," apologized Kendall, somewhat self-consciously, "but I've long nursed a theory that one's mood can be affected by other people's thoughts."

"I wouldn't pronounce that impossible," said Fraser tolerantly.

"No, sir." Much encouraged, he went on. "Like when you think of someone you haven't seen for a long, long time, and a minute later he knocks at your door. Most people have had that experience! You see, he's approached your door thinking strongly of the surprise he's going to give you. His thoughts have affected yours. You've thought of him. Then he has knocked."

"I see what you mean," said Fraser. "You're tracing the

source of so-called hunches. The detective sometimes can get a hunch that the man he wants is in a certain place just because the wanted man keeps thinking furiously, 'He mustn't know I'm here! He mustn't know I'm here!'"

"Exactly, sir!"

"The implication is that there's some scheming taking place on board, and it's making us vaguely uneasy?"

"Yes, sir."

"An interesting notion. Quite plausible. Thank you for mentioning it, Mr. Kendall. I fail to see what we can do except proceed in the usual manner, taking the usual precautions. Please present the chief engineer with my compliments and tell him we shall blow in less than one hour's time."

"Very good, sir."

The *Starider* was one million miles out, a long, golden cylinder with multiple rows of ports sending their rosy glow into the velvet of space. Behind her streamed a great tail of fire. Earth was merely an opalescent ring where the light of the distant sun bent through her atmospheric blanket. Mars was a pale-pink pinhead.

First Officer Kendall and Captain Alan Fraser stood in the bow chartroom watching the navigators of the mid watch operating their calculating machines. A knock sounded at the door.

Fraser said to his waiting orderly, "See who it is."

"Bollond and a prisoner," reported the orderly. He said it with completely unemotional precision, as if Bollond brought along a prisoner twice in every hour. At Fraser's nod he opened the door.

The captive proved to be an unkempt, shifty-eyed individual clad in the smeared denims of a ship's greaser. His right arm was in the grasp of the triumphant Bollond.

"Well, what's wrong?" de-

manded Fraser.

"This geezeber," said Bollond, with an injured air, "is wearing celloplast." His eyes followed Kendall as that person gave a significant wink and went out the door. "Show the captain your fingers."

"Yes, let me see them," added Fraser.

"Go to hell!" snarled the prisoner.

With a swift and dexterous jerk, Bollond brought the imprisoned arm up behind its owner's back. He continued the motion until the other emitted a reluctant gasp. Then his left fist shot out like a striking rattlesnake. The prisoner reeled under the blow.

"Stand to attention in the presence of the captain," growled Bollond, "and do as he tells you."

"That'll do, Bollond," said Fraser sharply. Striding forward, he seized the captive's right hand, turned it palm upward, looked at the oval patches of glossiness shining on the finger pads. "So you think it necessary to hide your prints! Why?"

"Find out."

Fraser's jaw lumped in annoyance. He noticed a red gleam come into Bollond's eyes, saw a sudden tightening of the detective's grip upon the captive's arm.

"Behave yourself, Bollond," he admonished. His attention shifted to the returning Kendall. With a snort, Bollond cooled his own system. Kendall handed Fraser a folder of documents, waited while he raked through them. Finally Fraser found a paper, opened it, held it out to the prisoner and pointed. "Rubber-stamp prints, I suppose?"

"Nuts!"

"Where'd you get these false papers?"

"Two nuts!" said the prisoner.

"Bollond!" snapped Fraser quickly. Again the detective relaxed. Eyng the prisoner from soles to hair, Fraser said, "Any

more with you, and if so, who are they?"

"As if I'd say!" sneered the other.

"All right." Fraser nodded to Bollond. "Drag him away. Skin that junk off his fingers and get me his real prints. Assemble his Bertillon data, and photograph his iris pattern."

"Come along, you!" With an anything-but-gentle jerk, Bollond urged his captive from sight.

Contemplatively, Fraser stared at the closed door, while behind his broad back the calculators clicked away steadily. The whole ship thrummed on an even note that sang of sweetly running engines and smoothly controlled power.

Kendall knew of what the skipper was thinking. There was no man more conscientious than he, nor any more inclined to feel the burden of their responsibilities. Fraser was thinking of the six hundred souls in his charge—and of the ill-fated *Emily Dean*.

"A discharged stir bum," suggested Kendall comfortingly. "Trying to work his passage across."

"I hope so," returned the skipper. "But if he's one of an organized gang—if there are others—" His voice trailed off. With a shrug, he turned to the leading navigator and said, "How're the figures for orbital drift?"

The persistent Bollond reported eight hours later. His long, lean, pessimistic face was wearing an I-told-you-so expression tinged with satisfaction.

"Pinned him down, sir," he announced. "The cosmic flash has just come in from Earth identifying him from the data we'd sent back. He's Umberto Lolorio, just out of Dannemora. It was his second stretch for robbery with violence."

"Ah!" Fraser rubbed his chin musingly. "A lone wolf or a mobster?"

"One of Big Bill Mead's men. Just a minor punk, but one of the gang, all the same. We've nothing against him except the charge of boarding the ship without the permission of the authorities, and sailing with forged papers. We can hold him on that."

"Has he said anything yet?"

"No, sir." Bollond shuffled uneasily, rubbed his right fist against his thigh. "All I can get out of him is, 'Don't make me laugh.'"

"Oh," said Fraser. He turned around as if to stroll away, whirled unexpectedly, and snapped, "What's the matter with your right hand?"

Bollond ceased rubbing it, held it up and looked at it as if he'd never seen it before.

"Bruised," he said coolly. "He lost his temper and hit me on it with his right eye."

"Now look here, Bollond," began the skipper, betraying a trace of ire. He opened his mouth to say the rest, his eyes found the door, he changed his mind and said, "Come in, Miss Wilson." Then he returned his attention to the nonchalant detective. "That's all, Mr. Bollond."

Her arm linked lightly in Kendall's, Miss Wilson entered the chartroom. She was slender in a sheath of blue silk.

"Thank you, captain. I wanted to see the controls. I also wanted to get away from that fat man."

"Cassidy? Has he been bothering you?"

"Oh, no. He is not discourteous. But he bores me. And I do not like him."

"Never mind. Permit me to show you around." Conducting her to the vision screen, he showed her the spread of the heavens before the thundering vessel's bow, explained in simple terms how the screen functioned, picked out a pinkish speck from the multitude shining in the vault of space and told her it was Mars.

Kendall went with them from



one instrument panel to another, putting in a word here and there to help out the explanations. The girl's interest increased whenever Kendall had something to say, and Fraser noted the fact without comment.

The three had just reached the row of steadily clicking calculators when Miss Wilson exclaimed, "My, it's gone quiet!"

It had! Those in the chart-room had been too absorbed to notice the fact until now. A strange silence pervaded the on-rushing *Starider*. Already the navigators were looking up, their eyes questioning the captain.

Racing for the door, Kendall shouted, "The rockets have cut off!"

Calmly, with practiced speed, Fraser snatched up a ship's telephone, dialed the engine room. Over his shoulder, he said, "I think you'd better return to your cabin, Miss Wilson." He watched her move gracefully through the door. A voice came readily through his phone.

"That you, Chief MacFarlane?" asked Fraser. "What the deuce is the matter?"

"Sabotage," answered the voice, speaking with great casualness.

"But—"

"Dinna worrit yersel'," continued the voice. The sound of a quick exhortation slipped over the wires. "There's naething wrang except that some son of a monkey gave the main fuel valve a wee bit turn and shut off the juice. So there's air in the siphons, but we'll blaw it oot. It'll tak' a couple of minutes, ye ken."

Well within the two minutes, the *Starider* jerked forward under her resumed acceleration. *Whoom-pur-r-r-r!*

"A try-on," said Fraser to himself. "Hereafter we'll have to keep our eyes skinned!" The telephone shrilled.

"Ye see?" gloated the voice. "There willna be muckle trouble wi' Wullie aboard!"

Fraser went out. He encoun-

tered the returning Kendall at the top of the stairs leading to second level. Kendall slid to a stop on the steel catwalk.

"Somebody turned the main valve, sir. It wasn't anyone out of the engine room. Neither was it any of the crew—so that means the culprit was a passenger."

"I don't like it, Mr. Kendall," said Fraser evenly. "There's something brewing this trip. We'll have a general search right now. Rake the ship from end to end, passengers, luggage and all. Arrest anyone found in possession of small weapons, even if he has a permit. We'll discuss the permits later."

"Very well, sir." Kendall raced off.

His tread firm and heavy, the skipper ran down the stairs with the dexterous speed of a sailor. He cut past the dispensary where a couple of spacesick emigrants were being coddled by the ship's nurse, rattled down a corkscrew stair, passed along a steel-walled passage, rounded a corner beyond which was the ship's jail.

There was no guard there to salute his arrival. The passage and the little calaboose were both as mute as the grave. The heavy, steel-barred door of the jail stood slightly ajar, and the jail itself was empty.

Behind him a smooth voice said, "So, captain, the cupboard is bare."

Swiveling on one heel, Fraser growled, "What brings you down here, Colonel Cassidy?" His eyes glinted. "You are aware that this section of the ship is out of bounds to passengers?"

"Quite, quite!" Cassidy waved a plump hand in which something gleamed metal-bright. "I am familiar with the etiquette of space travel." Again he waved the hand to draw attention to its contents. "This, my dear captain, happens to be a miniature blast gun. A ladies' model, but

quite effective, I assure you!"

"Meaning what?"

"Meaning you are too precipitate. You have ordered a general search. You are somewhat early with your suspicions, and you have forced us to beat you to the draw."

"So?" inquired Fraser, his eyes narrowing.

"So now we exchange status. I am the commander. You are a passenger. Henceforth I give the orders." Cassidy's fat jaw protruded, making his face harder and more muscular than it first appeared. "To use an out-of-date vulgarism, this is a stick-up."

"That would all work out very nicely if only you had the guts to blast." Fraser's deliberate grin was icy. "But, blast or no blast, I'm going to smack you right now!" With that he leaped like an angry leopard.

Sheer surprise made Cassidy hesitate too long. He was caught off balance by his victim's astounding foolhardiness. Before he could squeeze his weapon, before even the first glint of anger crept into his eyes, Fraser's powerful left hand had grabbed the wrist below the gun and forced it upward. Viciously, Fraser's bunched right fist dug into his opponent's paunchy midriff, producing a grunt of pain. The gun exploded uproariously, blowing a small, circular gap in the metal ceiling.

Desperately, the pair swayed to and fro, Fraser's fierce determination being matched by Cassidy's well-nigh unshiftable bulk. But for the artificial gravity, the pseudo colonel could have been tossed around like a baby. As it was, his feet seemed welded to the floor.

Again the gun bellowed, this time shearing a section from the heavy bars forming the jail door. The wall far beyond the door glowed white-hot and made bubbles.

Over the other's fat, heaving shoulders, Fraser saw Kendall turn the farther corner at full



gallop. Making a mighty effort, the skipper forced the bucking Cassidy around, got a lock on his gun arm and started to apply the grief. Kendall arrived, grabbed a hunk of Cassidy's hair with one hand, snatched the gun from reluctantly opening fingers with the other. Then the first officer started to force back the head to an angle suitable for an artistic uppercut.

The punch was never delivered. Even as Kendall's eager arm swung back, the passage became full of violently cursing men. A blackjack descended on the head of the enthusiastic Kendall, who promptly collapsed. He went down with roaring noises in his ears and vaguer

sounds of conflict coming from other parts of the ship.

Releasing his opponent, Captain Fraser made a frantic dive for the dropped gun, touched it, but failed to grasp it. A million meteors exploded before his eyes, he became prone and stayed that way.

Fraser came to his senses in the chartroom, sat up, tenderly touched a large swelling under his hair. Some wallop, that! His whole cranium ached and pulsed like the very devil, and with every thump of his heart came a painful popping sensation at the backs of his eyes.

By his side, Kendall reposed, flat out. Blinking to clear his

vision, Fraser stared around the chartroom. The navigators were as busy as ever, their calculators clicking in normal manner. First gaze wasn't sufficient for the still dazed commander; it took him a second to discover Third Officer Voight standing sullenly by the screen, with Cassidy and three armed henchmen near.

Noting the skipper's recovery, Cassidy crossed the room with ponderous tread and said, "For such a fool, you're mighty lucky! You'll never come closer to death."

"I'm far from being dead yet!" Shakily, Fraser got to his feet, meeting the other with eyes fully as cold. "You have seized my vessel by armed force, eh?

Piracy in this enlightened age! You know the penalty?"

"Summary execution." An amused smile overlay the fat man's features. "If you're caught—if." Down by their feet, Kendall groaned, struggled to sit up. Cassidy ignored him and went on. "We won't be caught, though. Not in a million years!" He produced a small wad of documents, tapped them airily on the flat of his hand. "My papers. I found them in here. You've been looking through them, I see."

"Yes, I have," admitted Fraser. "Unfortunately, I could discover nothing wrong with them. They seemed perfectly genuine to me."

"Oh, they're genuine enough. I'm the forger!"

"What?"

"There is a real Colonel Cassidy," continued the criminal, enjoying himself. "Or, rather, I should say that there was one—before we eased him out of this precarious existence. He died somewhat messily, I'm sorry to say. A very sloppy job for which I had occasion to reprimand his executioner." His face took on the long-suffering air of a stickler for efficiency who has the misfortune to be afflicted with cretins. "I took his papers and his appearance. Wonderful what plastic surgery can do nowadays, isn't it?"

Fraser said quietly, "All that won't save you."

"Indeed." The pseudo Cassidy showed mock interest. "We'll see. Meanwhile, I'm William Mead to you, sometimes known as Big Bill." He waved the documents toward his watching trio. "And these are some of the boys." The boys favored Fraser with deep scowls.

Sitting up, his hands braced behind him, Kendall suddenly chipped in with, "You dirty, big-bloated bladder of engine-room muck! Sometime I'll tear out your guts for this!"

"Hah!" The false Cassidy, now the badly wanted Mead, ap-

peared more amused than angered by this unexpected tirade. He smoothed his hair, put the documents in his pocket, buttoned his jacket. To Fraser he said, "He's thinking of me pawing his sweetie."

"If you've as much as touched Miss Wilson," breathed Kendall, scrambling to his feet.

"Shut up!" Mead spoke with the viciousness of a patience that has expired. He indicated the glowering three, who had now edged closer. "Use sense and hold your tongue while it remains warm, see?" He was about to add more when an agitated voice interrupted him.

"Look, Bill," growled one of the gunmen. He pointed his weapon toward the vision screen. "Something's happening!"

Striding to the screen and pushing Voight aside, Mead studied the velvet black expanse with its multitude of brilliant pinpoints shining thereon. Starting from the center of the impassive plate and crawling upward, spreading slowly as they went, were five thin lines of crimson fire.

"What are those?" he demanded of Voight.

"Rockets," replied Voight in reluctant tones.

"Why didn't you tell me about them?"

"Didn't have a chance. They've only just appeared, and that sharp-eyed bum saw them as soon as I did."

"Five of them," rumbled Cassidy who was now Mead. He looked threateningly at the antagonistic third officer. "What do five red rockets mean?"

"Ship in distress," Voight told him curtly.

"Damn!" Mead's curse was violent. His mind worked quickly. A distressed vessel would not fire rockets unless it knew a ship to be in the vicinity. That meant that close by was one, or maybe several rescue ships already summoned by cosmic flash. Probably the flash had

gone out during the coup aboard the *Starider*. "Whereabouts is the ship?" he asked, gazing into the screen. The lines of fire were now feathering outward in readiness to bloom.

"I don't know." Voight did his best to look stupid.

"Rawson!" roared Mead, his great voice echoing and re-echoing through the room and along the outer passage. "Rawson!"

A furtive little runt came in on the run. Mead showed him the screen. Even as he pointed, the crawling lines ceased their motion, became five small, crimson dots that hung in space for a second or two, then abruptly burst into balls of lurid fire.

"You've done plenty of space wrangling in your time," said Mead, "so tell me, what're those?"

"Jerusalem, chief, they're distress rockets!"

"I know it," Mead bellowed, "but where from, and how far off?"

"How far off?" Rawson's pale eyes opened wide. He backed away as if making ready to bolt. "They're from this ship."

"This ship?" The gangster's face went livid. He whirled around, landed the unwary Voight a heavy punch in the face. "That's for playing dumb," he shouted. Veins stood out on his forehead.

"They'll have been shot from the bow," suggested Rawson, fearfully. He backed a bit more, reaching the door to the passage.

"Search the bow. Get the others to give you a hand. Find the guy who set off those fireworks and bring him to me. I'll teach him to shoot things out! I'll show him what it feels like to be tossed out himself! I'll—" Mead's attention went to the staring navigators. "Well, what are you gaping at? Get on with your jobs."

"Them rockets mean nothing, chief," said Rawson, soothingly. "You can see them only a little way. They're used as a local

guide for searching lifeboats. A million to one they've not been seen, and so—"

He stopped as a gong boomed sonorously, its rich note ringing through the chartroom. Simultaneously, a twenty-inch vein of violet light shot across a glass disk set in the wall above the vision screen, bisecting the disk and remaining steady but glowing.

"Now what?" said Mead, irritably.

"The cosmic flash, chief," Rawson explained. He hung around the doorway as if reluctant to enter again. "I guess somebody's calling."

Monotonously, the violet beam continued to glow while Mead watched it with open ire. His attitude showed clearly that he had no knowledge of the beam's mode of operation, but his natural wariness made him anticipate more trouble.

"It's an electric arm streaming through gas under pressure," explained Rawson. "It's modulated by radio impulses, and flickers and waves in characteristic patterns determined by speech broadcast from a distance. When you get used to it, you can read its distortions like reading a book—almost a kind of visual shorthand."

"Read it, then," Mead snapped.

Rawson came back into the room, having made up his mind that helping with the search up at bow was less desirable than hanging around with the temperamental Mead. He switched on the receiver. Immediately the thin, horizontal column of light was agitated into an unending series of waves of varying depth. Watching them with his pale, watery but intelligent eyes, Rawson recited the message.

"Battleship *Vanguard* calling Spaceliner *Starider*."

"How do they know it's this ship?" shouted Mead, his face reddening up once more.

"From the sailing list. We're the only vessel hereabout." His eyes still on the writhing beam, Rawson carried on. "*Vanguard* responding to distress rockets. Are you getting us, *Starider*? We cannot spot your obscuration on the starfield. Blow your mag sun and we'll come up. Battleship *Vanguard* calling Spaceliner *Starider*." The message began to repeat. Rawson said, "They want us to throw out the magnesium sun, a big flare that'll burn for an hour."

"They can't find us if we don't?"

"Well"—Rawson hesitated—"they're evidently right ahead of us. Once we pass we'll see each other's rocket flare."

"If we're near enough," Mead qualified.

"They're near enough to have seen those rockets fired from the bow."

"Yes, that's true." The gangster scowled.

"They'd look for our rocket trail," Rawson went on, "except

that they've assumed that since we're in distress our rockets aren't functioning. It'll give them a surprise when they do see it. That'll make them come hightailing after us for sure!"

"Damn and double damn!" said Mead, heartily.

A pale-yellow ball blossomed halfway between the center and the bottom of the screen. Rawson pointed to it.

"There they are, ahead like I said, but angling below us. They've just blown their braking rockets so's they can drift around."

"Well, suggest something, man!"

"Cut the rockets," yelled Rawson, in agitated response. "We'll be over them in twelve seconds. Cut the rockets and coast along."

Mead snatched the engine-room phone, bawled, "Cut all rockets, you dunderheads! Cut every one of them!" The vessel went silent, the subtle trembling in its frame died out.

"They haven't had so much as a squeak out of us," he rumbled. "So what with our velocity this way and theirs the opposite way, it'll be some lens that'll spot us

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when we start blowing again."

"Unless they've got some kind of detector," Rawson ventured. He slunk toward the door again.

"You ought to know," said Mead.

"I wasn't on a warship. I was on freighters. Only navy men know what the navy's got."

"They've nothing," declared Mead, positively. "If they had, they'd have used it already." He turned, ignoring the still vibrating violet flash and not bothering to cut it off. Pointing to Fraser, Kendall and Voight, he said, "Stick those three in Fraser's cabin, under guard. I'll send for them when I want them."

It was a full twenty-four hours before the three saw him again. He entered the cabin with his armed bodyguard of two, hooked one fat leg over the corner of the little table, and spoke to Fraser.

"I've a couple of questions for you. Answer them promptly, without any fooling, and you'll continue to be looked after."

"It depends on the questions," countered Fraser, stubbornly.

"It depends on me," growled Mead, "how much longer you remain in a fit state even to hear questions let alone answer them."

"Let me ask you one," put in Kendall. "What've you done with Miss Wilson?"

"She's bottled in her cabin. It seems she doesn't like me much, yet." Mead's piggish eyes glittered with faint amusement. "I may prove amiable enough to permit her to visit you if you'll cut the cackle and come across with what I want to know."

"Give me the questions, anyway," said Fraser.

"All right. Firstly, as you know, we started blowing ten hours back. Now your navigators are saying we've got to hit a new angle. Here's their data. Are they correct?"

"Yes, they're quite correct."

"Why do we have to change course?" Mead leaned forward, his expression openly suspicious.

"That little squirt Rawson could have answered you that one," replied Fraser, scornfully. "We lost time when we stopped the rockets and coasted. So now we'll have to meet Mars correspondingly farther along its orbit. That means we've got to alter the angle of flight."

Mead seemed slightly mollified. "Next, supposing the *Vanguard* does get after us, is there any way of us telling?"

"Not unless she signals on the flash."

"Why not?"

"Because she'll be chasing us from right behind where we've got nothing but rockets. Dead astern is our blind spot. What's the matter? D'you think she's after you?"

"Me? Ha-ha!" His laugh was mirthless, artificial. "Not on your life. I just like to know things. Besides, I believe this vessel can keep ahead of any battleship. We're safe enough unless something faster gets after us, such as a light cruiser." Fishing out a long sheet of paper, Mead consulted it. "We never did find that smarty who blew those rockets from the bow. He's around somewhere, and I'll get him yet! I've been checking up on the captives and find that according to your ship's list we're short by one. A guy named Bollond. He's the ship's so-called detective—though he sure failed to detect us!" His chuckle was loud.

Kendall grimly echoed the chuckle, and said, "And you've sure failed to detect him, eh?"

Getting off the table, Mead shoved his fat face against the first officer's. He spoke very low and very slowly, his eyes hard.

"See here, I'm getting tired of your wit!" He kept his face there as if inviting the other to slap it. Kendall's knuckles whitened with the intensity of

his grip, his features grew strained as he tottered on the verge of accepting the invitation, bodyguard or no bodyguard. The two gunmen were very near him, watching closely.

"Kendall!" snapped Fraser, sharply.

The first officer relaxed slowly at the bark of the skipper's voice. Withdrawing his face, Mead smiled triumphantly at all three, left the cabin without another word. His pair of hoodlums looked long and hard at Kendall before they fled through the door.

Outside, Mead said to one of his followers, "Go get that dame and take her along to them. Let her have half an hour. Tell her she's getting it by my grace, and that I don't want her to pine in utter loneliness." He smirked and winked. Then his expression changed, and he added, "Curse it, I forgot to cross-examine them regarding where that Bollond might be. Doesn't matter, though. They'd have only played stupid. We'll have another search, a good one."

Full of importance in his self-appointed rank, he left the passage, paraded down to the engine room, howled for Chief McFarlane.

That worthy came along, scowled first at Mead, then at the engine-room guard lounging on the overhead catwalks. Smoothing the crisp gray hair on his head, he peered at Mead with sharp eyes that buttoned either side of a large and rather richly hued nose.

"Dinna ye ken, ye big fat loon," quoth Chief McFarlane, "that aboard ship even the skipper canna enter the engine room without ma pairmeession?"

"The hell with that!" dismissed Mead, airily. "Here's the navigators' data. Do your stuff and don't shoot off your mouth so much." He nodded toward the armed sentinels. "Else they're liable to shut your yap for you."

"Mebbe," said McFarlane, doubtfully. He shifted a very large wad of tobacco, eyed the other slowly from soles to hair. "Mon, ye'll tak' a mighty big casket—and I'll live t' see it gae doon!" He bowed his head solemnly, as if already attending the last rites.

"On the other hand," suggested Mead, darkly, "it may be you who'll go down, a thousand times faster than you'll like, in this casket." He waved a pudgy hand to embrace the entire vessel. With that, he went.

"Bah! There willna be muckle trouble wi' Wullie aboard!" Chief McFarlane's lean, leathery face twisted round to one side until his mouth became a small, lopsided hole. A thick brown stream suddenly squirted from it, shooting upward with considerable violence, and sousing the boots of an overhead sentinel.

"Hey!" shouted the victim, savagely. He thrust a furious head over the tubular rails, glared down.

"Relax," said the chief, contemptuously, "else I'll come up an' put a pain in y'r kilts!"

Mead looked over the gang, his eye mostly upon the surly Lolordo. "You ought to have found him, anyway. He kicked you around enough, didn't he?" He sniffed with impatience and scorn. "When a guy can vanish aboard a spaceliner so's half a hundred dim-witted searchers can't find him—"

"I haven't noticed that you've had so many bright ideas as to where he might have holed up," stabbed Lolordo.

"That'll do!" Mead's voice was sharp, full of warning. He watched them calculatingly. They shuffled around and stared back. Then he said, "I've been thinking things over. We're going to alter our plans. We've got to alter them. Our original ideas got spoiled by Fraser being too suspicious and too precipitate. We're getting mighty

close to Mars, now. That means we've got to solve the problem of how to enter Martian territory in peace and comfort, without the boobs in this vessel starting a hue and cry after us."

"How can you shut several hundred mouths?" asked someone.

"Easily," replied Mead. "And forever!"

Lolordo breathed deeply, his hissing intake audible all over the room. He stared around at his fellows, his eyes glittering. They returned his look, then shifted their inquiring gaze to the fat figure of their cocksire leader. All of them were wide-eyed and fidgety.

"What, squeamish?" jeered Mead. "You, Finnigan, with half a dozen killings on your hands? You, Murtillo, with a nice, bloody dynamiting to your credit?" He enjoyed himself, studying them in silence for a while. "Well, don't get worried, boys. I'm not asking you to turn this vessel into a slaughterhouse. That's too crude. Besides, what would the authorities think?" The way he smiled at them was irritatingly contemptuous. "No, we shall exercise a modicum of imagination. We shall employ a smooth touch, a touch of finesse. We shall arrange a very sad accident."

"An accident?" echoed Lolordo. "Of what sort?"

"The Starider will crash," said Mead. "It will fall out of control, plunging full tilt into Mars and killing every soul aboard. It will be a shocking affair. The papers will be full of it. We shall have excellent reason to congratulate ourselves on our fortunate escape in the lifeboats." He beckoned. "Rawson, explain it to the boys in simple language."

Rawson slouched forward. "There're ten lifeboats. Each can hold sixty. We'll take two of them after smashing the tubes of the rest. I'll navigate the leading boat and keep the other

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under duo-control by short-wave radio. We'll be within lifeboat range of Mars in four hours' time. We'll land near the fringe of the Great Northern Desert, destroy the boats, and scatter. Nobody'll ever know!"

A low murmur of approval went around the room. Not one of them cared a damn about the fate of those to be left aboard the disabled ship. In fact Finnigan and Murtillo looked faintly relieved. Lolordo's expression was now openly admiring as his black eyes studied the fat figure of his leader.

Mead got their attention again. This time, his voice was slow, emphatic, harsh.

"After we've landed it'll be every man for himself. One or two of you who aren't exactly intellectuals will be dumb enough to get themselves in bad again." He stared threateningly. "Any guy who gets caught will tell his own story and take his own medicine. If he as much as mentions the presence on Mars of the rest of us, we'll get him!" His voice rose to a shout. "We'll get him at all costs, d'you hear?"

Again the approving murmur. They glared at each other as if each was making it his personal business to warn his neighbor. Then they filed out.

Kendall was saying, half to Fraser and half to Voight, "I don't like it. They should have started decelerating two hours ago. If this goes on—" The roar of a blast gun interrupted him. He reached the door in one lithe bound.

"Be careful!" warned Captain Fraser.

Whipping open the door, Kendall looked out, expecting to meet the scowling faces of the ever-present guards. They were not there. The passage was empty, but an uproar sounded from somewhere toward the bow of the ship. The blast gun crashed again and many voices bellowed furiously.

Recklessly, Kendall sprinted

along the passage, his heavy boots hammering the steel floor plates. Fraser followed hard on his heels, with Voight close behind. Two blast guns roared simultaneously and a hoarse voice yelled a stream of profanity. Women started screaming way back in the emigrants' quarters.

Skidding around the corner, Kendall found himself plunging straight toward the unwary backs of his former guards. Guns in hand, the pair were sniping up the next passage.

The one on the left went flat as Kendall's one hundred and eighty pounds of solid muscle hit him between the shoulder blades. The criminal's gun fell from his surprised hand, and the flying Fraser, leaping the prone pair, snatched up the weapon and pounded on. Voight brought down the right-hand guard with a violent tackle that walloped the fellow's snarling face into the floor.

As Voight and his victim crashed, Kendall came upright, seized the weapon of the right-hand guard and pelted after Fraser. Behind, Voight got off his unconscious prey, found Kendall's opponent rising groggily, sent him down for good with a veritable jawbreaker. Then he raced after the others.

Up in front more blast guns crashed. A loud clang of an emergency lock and a dull bellow of rockets showed that a lifeboat had blown clear and was away. Came a minor explosion followed by a rush of ozone through the vessel. Toward the back, the frightened women were either silenced by the increasing noise, or had been calmed by the stewardesses.

A searing beam of heat singed the top hairs of the galloping Fraser as he passed the door of the chartroom. It cut a ceiling light from its metal collar, showered glass over the following Kendall and Voight. There were five bodies here. Kendall made it six as his ready weapon found

the criminal who had sniped at the skipper.

The onrushing three found the source of the trouble up by the starboard fore lifeboat. Here, most of the crew were mixing it with a howling, cursing gang of toughs. Some of the latter had guns, some hadn't, and many of those who had were in contact too close to use them. A couple were trying to break free from the sweating, milling mob and gain the elbow room necessary for sniping.

One had successfully backed out, had raised his weapon and was leering along the sights when the pounding Fraser caught him from behind. There was something savage in the way the skipper bounced him on his head. A second broke free, got two paces clear before he collapsed under the descending spanner of Chief McFarlane.

There came a wild rush of engine-room staff hard on the heels of their grunting, juice-squirting chief, and these, with Fraser, Kendall and Voight, violently shoved the whole struggling mass halfway along the passage to the very door of the lifeboat.

Mead's fat features, crimson with exertion, showed in the doorway. He was standing on the rim, head and shoulders above the rest. From this vantage point, he drew a bead on the skipper fighting toward him. McFarlane flung his spanner, missed, but made Mead's blast bring metallic bubbles from the ceiling. Then, as the charging wedge reached for Mead, a blast sounded inside the little vessel and the gangster's body went down, a wisp of smoke where his head had been.

With reckless abandon, somebody produced a hand grenade, shied it through the lifeboat's door before the skipper could stop him. The resulting explosion and the carnage inside shocked everyone into silence and temporary inactivity.

Then, while the uncontrolled

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drama. His gaze was level, he knew that he'd no need to mince words for her. Pointing to the pink dot on the screen, he continued, "There goes half the gang led by that rat Rawson. Before they left, they blew out all our fuel, wrecked all our lifeboats and left us to plunge helplessly into Mars. As a rough estimate, we'll hit in ten hours' time."

"No fuel?" Her huge eyes switched to Kendall, then back again. "Is there nothing you can do?"

"Nothing," replied Fraser, flatly. He admired her coolness. She was taking it well, very well. He pointed to the spark again. "All I'd like within the ten hours we've got would be to see those sneaking vermin get it in the neck." His voice had grown to a deep growl, but he lowered it and added, "They also destroyed the transmitting part of our flash. The receiver is untouched, but that's not much use. What I want to say is that if you've any message you'd like to send your dad we can toss it out before we hit."

While she thought it over, Kendall walked to the wall, idly switched on the flash. Much to his surprise, it flickered violently. Every eye in the chartroom concentrated on that wavering beam of light while he read its message aloud.

"Terro battleship *Vanguard* calling Martiacast VXX. Space-liner *Starider* maintaining course without deceleration. Apparently out of control. Single lifeboat observed heading northern hemisphere. Note course." Here followed exact details of the lifeboat's course. "Take *Starider* data for landing prediction." The unseen broadcaster rapidly reeled off a mass of technical data concerning the ill-fated vessel's rate of acceleration and angle of approach. Fraser noted it down, and the listening navigators automatically punched it into their calculators. Force of habit per-

sisted even toward the yawning grave.

The message ended, was followed by acknowledgment from Martiacast VXX. Still wide-eyed with surprise, Kendall said, "Seems their thermocouple detector put the bee on us when we coasted overhead. It smelled our still-hot tubes. They turned as soon as they could and took after us."

"Yes," Fraser studied the data he'd written down. "Evidently the *Vanguard* has trailed us, but we're too fast to overtake. This data of hers will be dead accurate. The navy gets things down to split-hair dimensions."

"Well, can't you make use of the data?" asked Miss Wilson. She glanced at the screen upon which the ominous shape of the Red Planet had swollen and was still swelling.

"My dear," said Fraser, "no data's of use without fuel. Even with fuel it'd be a complicated problem in astrometry to decelerate safely at this late hour. We're going fast, damned fast, but we'd manage it, I think. Give me the fuel, and plenty of it."

She was crestfallen, though the prospect of the coming crash seemed to disturb her not at all. Secretly, Fraser thought she was clinging to faith in their ability to avert disaster at the last moment. It was all very pathetic.

"Couldn't you throw out the lifeboats and let the *Vanguard* pick them up?" she suggested.

"We could if they were workable. But their tubes have been destroyed beyond repair in the short time we've got. If we throw them out, they'll partake of our velocity. They cannot decelerate, and they'll hit along with us."

"I see." She smiled apologetically at the sympathetic Kendall. "I know so little about these matters. Even at college, in simple geometry, I couldn't claim to be a wizard. I could make a very neat job of it when

told to describe a circle." She laughed gayly. Her laugh made a lilting ring in the chart roof of the silent *Starider* as it plunged onward, onward.

Fraser gazed moodily at the threatening screen, his thoughts far too serious to be lightened by her cheerful chatter. Those emigrants farther back, all of them uplifted by the sudden ridding of the criminal menace, all of them joyful in expectation of an early landing on a new world. Their only worry was whether Mars would accept them, take them to her bosom. Yes, to her bosom—they little knew how deeply, how tragically.

Following his intent stare, Miss Wilson chirruped, "That little thing is Phobos, isn't it?" Receiving the skipper's answering nod, she went on, doubtfully, "Well—well—that thing makes a circle. It's a good bit nearer than us, but it doesn't crash. Why can't we do the same?"

"It has struck a balance," explained Fraser, "where the centrifugal force generated by its own swing exactly compensates for the gravitational pull of its primary. We could do the same, we could strike a suitable orbit if we had the necessary data and the fuel. We've got the data." His mouth opened in a sudden gape. "And, of course, we'd need much less fuel than that required to make a landing."

"So?" said Miss Wilson, calmly.

Not answering her, Fraser came to dynamic life, snatched up the engine-room phone and shouted into it. "Chief McFarlane? Are you sure there's no fuel in the main tanks? None at all?"

"Nary a drappie," replied a reedy voice. "There's more juice in ma gobboon than in th' tanks."

"No use!" murmured Fraser to Miss Wilson, the phone still to his ear.

"But if mebbe ye've hatched a wee bit plot," continued McFarlane, "I could find ye about a

few hunder gallons of stuff. Not enough to land, mind ye, but enough for ye to fiddle wi' th' scheme, if ye ha' one." He stopped and, exasperatingly, left the phone. The sound of a distant but violent squirt came over, followed by a clang, then his returning footsteps.

"Where?" bawled Fraser.

"Dinna ye ken we've nine life-boots, each wi' a dollop," said Chief McFarlane impassively. "Them skulpins busted their tubes but didna blaw their tanks. They knew there wouldna be enough for anything but a monkey trick." He squelched into the phone as he shifted his wad from cheek to cheek. "But we can pump them oot, if it's any gude."

"Pump them," Fraser roared, excitedly. "Get them emptied and be ready to blow at command. I'll feed you the data as soon as it's ready."

"Well?" inquired Miss Wilson.

"We might do it. Please God, we will! We'll try, anyway. We can't take up any orbit. We'll have to turn and strike at an exact tangent the only orbit in which we can stay balanced at our speed. It means careful calculation and very precise timing, with little or no fuel for making corrections once we've blown into the tangent."

With the engine-room phone clutched tightly in his left hand, Fraser stood and kept his eyes fixed on the chronometer which he held in his right. He watched the instrument with strained intensity, and the phone was half against his ear.

Over by the chartroom wall, Kendall had his whole attention concentrated upon the vision screen now three-quarters filled with the red glow of Mars. Between the two, the leading navigator was studying the skipper, hoping and praying that his calculation of split-second timing would be right on the mark.

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A deathly hush lay over the falling vessel while slowly the sweep-second hand of the chronometer crept around the imperturbable dial. Fraser's pupils were mere pin points, his face lined and worn. His lips opened in readiness for the coming word. Kendall stiffened. The leading navigator's knuckles went white.

"Blow!" shouted the skipper.

A terrific burst of thunder came from the rockets and the whole vessel slewed around. Crockery crashed in the galley, and agitated voices came from the emigrants' quarters. Kendall watched the disk of Mars slide along the center gradation of the screen.

"One and a half degrees over," he snapped.

"Two seconds on No. 5," called Fraser. He put down the chronometer, wiped sweat from his forehead.

The lone rocket rumbled briefly. The vessel swung, went silent. Kendall continued to stare at the screen. Fraser regarded him anxiously.

"Dead on," reported Kendall, after a while, "but I think there's an inward drift." He continued to watch. "Yes, she's still swelling. One-half of one percent."

"All asterion, thirty seconds, blow!"

At the tail, the battery of main driving rockets flared obediently. They died out. Flared again for four seconds. Went silent.

"Seems O. K. to me," said Kendall in the end. "The disk's holding without enlargement or reduction and turning evenly. We've got it as tight as a drum."

Fraser said nothing. He grinned his thanks to the leading navigator, and that worthy fidgeted.

"Feefty gallons and no more," complained the phone. "Ha' ye done it?"

"Yes," answered Fraser, joyfully.

"Diinna ye know, eh? There

willna be muckle trouble wi' Wullie aboard!" A triumphant squirt, and the phone went dead.

Kendall switched on the flash. "—now taken up a fixed orbit eighty thousand beyond Phobos. Are three hours off and wish to make contact."

The flash gave its characteristic end-of-message wriggle, then leaped and writhed in response to impulses from the answering station.

"Martiacast VXV calling Vanguard. Can now observe the Starider. You've permission to enter the sphere of Mars to make contact with vessel. Are ordering out space tugs. Patrols now following lifeboat to landing. End of message."

"So," said Fraser, "the navy's going to conduct us ashore." He enjoyed a long, deep breath. Then he studied Kendall, his eyes shrewd, knowing. "I think, Mr. Kendall, that you'd better go and tell Miss Wilson she can pack in readiness for landing."

His grin was wide as the first officer departed on his errand with obvious eagerness. Pursing his lips in a loud whistle, Captain Fraser smacked Voigt on the back, beamed upon the leading navigator and went out.

The writing in the logbook was neat. Fraser was always prideful about his log. Still whistling, he made a long and careful entry containing many mentions of Bolland.

Then he wrote, "—until, at the suggestion of Miss Wilson, a lady passenger—"

Toward the stern many voices chattered excitedly while the huge bulk of the Starider swung majestically on its circular course. There was a faint drumming discernible as the approach Vanguard neared. Somebody dropped a suitcase, and a woman laughed in tinkling tones. Still writing steadily, Captain Fraser ceased his whistling and broke into violent song.

THE END.



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